Journal
OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION

AVMA Convention—San Antonio, Oct. 15-18, 1956

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Vol. 129 **August 1, 1956** **No. 3**

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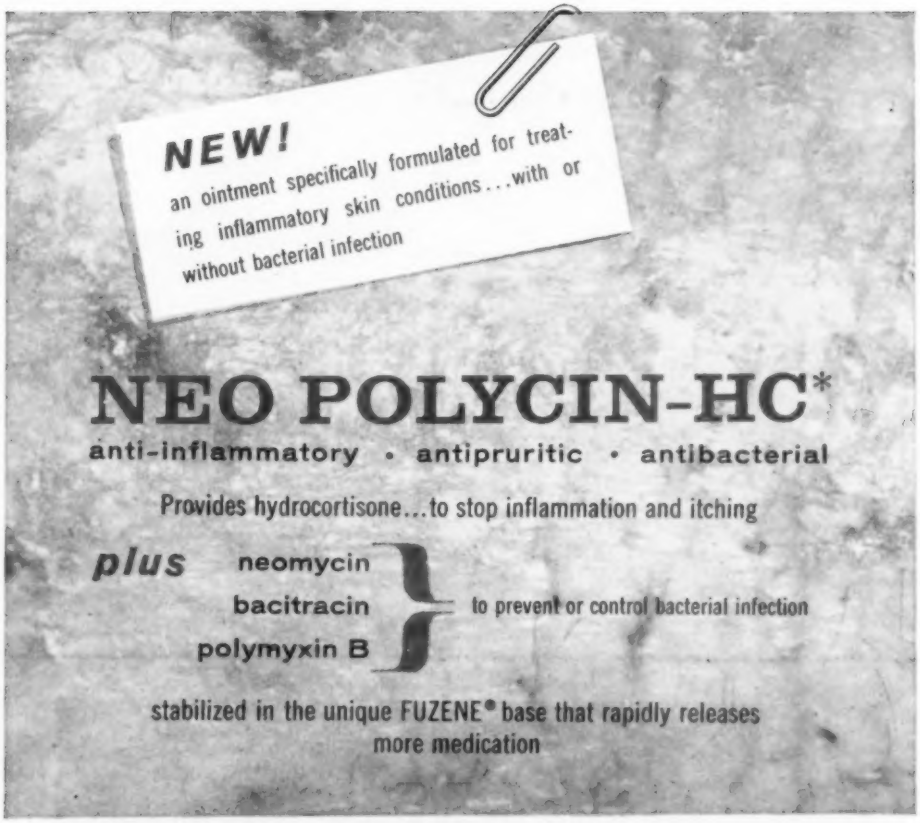
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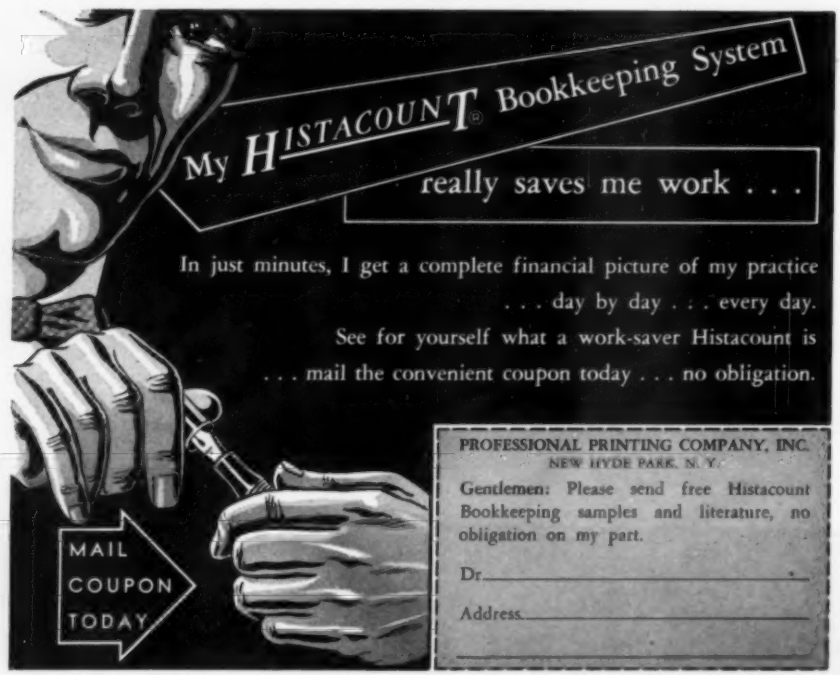
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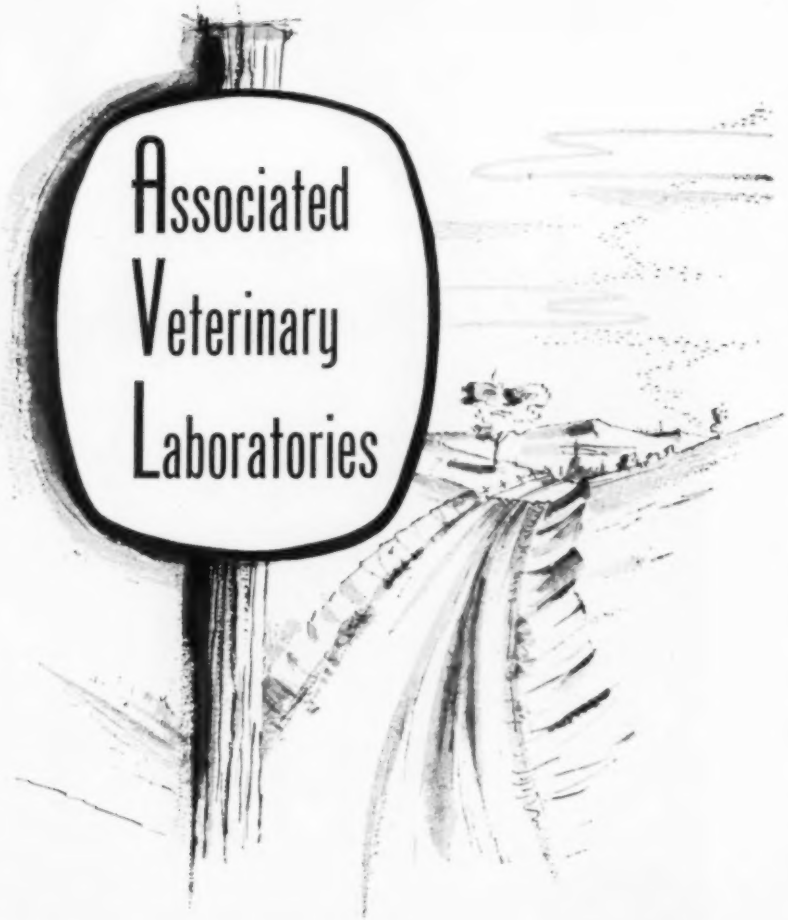

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AVMA ☆ Report

Veterinary Medical Activities

✦ Ames, Iowa, has been recommended as the site for the U.S.D.A. Animal Disease Research and Control Laboratories. Appropriation requests include $18,915,000 for construction purposes.

The selection of this site was made by an industry committee appointed by Secretary of Agriculture Ezra Taft Benson (*see* AVMA Report, JOURNAL: July 1, 1956).

The committee was instructed to weigh the following factors in evaluating proposed locations:

1) The laboratory should be at, or near, a land-grant college with a veterinary college or strong veterinary research department. In this connection, the quality of the institution's professional staff, the institution's record of achievement and service, especially on livestock diseases, the quality and extent of library facilities, and the possibilities for cooperation in research and in use of land and facilities were to be given consideration.

2) The location should be readily accessible; outside a critical target area; in a community that could assimilate 100 to 200 professional workers and their families, with mutual satisfaction to these workers and to the community.

3) The physical requirements to be met stipulated: 200 to 400 acres of land—18 acres for main buildings, the remainder good pasture land; water supply of 250,000 gallons per day and sewage facilities to handle 200,000 gallons per day.

Proposals were received from 34 land-grant colleges and an additional 40 communities not immediately associated with this type of institution.

The committee visited nine land-grant colleges during a period of six days and presented their recommendations to Secretary Benson in Kalispell, Mont., on the evening of July 6.

The announcement of the committee's recommendation was made from Washington, D.C., July 10.

★ ★ ★

✦ AVMA Special Committee on Insurance (Drs. O. Norling-Christensen, Carl A. Brandly, and Homer D. Carter) met at Association headquarters on July 16.

★ ★ ★

✦ Executive Secretary J. G. Hardenbergh and Assistant Executive Secretary H. E. Kingman met with the Committee on Local Arrangements in San Antonio on July 20. Dr. Hardenbergh visited the veterinary school in Mexico City on July 18-19 to make plans for the adjourned session of the AVMA convention to be held at that institution on Saturday, October 20.

★ ★ ★

✦ Executive Board Member F. B. Young (District V) represented the AVMA at the Iowa State College Short Course and dedication exercises at Ames, Iowa, July 17-18; Executive Board Member Edwin Laitinen (District IX) represented the AVMA at the Canadian V.M.A. meeting in Montreal on July 19-21.

★ ★ ★

✦ A meeting of constituent secretaries, delegates to the House of Representatives, and local association representatives from Executive Board District II was held in Philadelphia, July 27.

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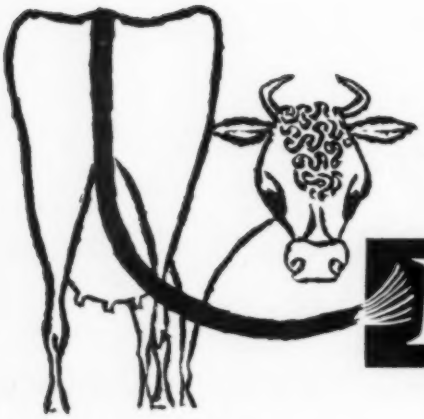

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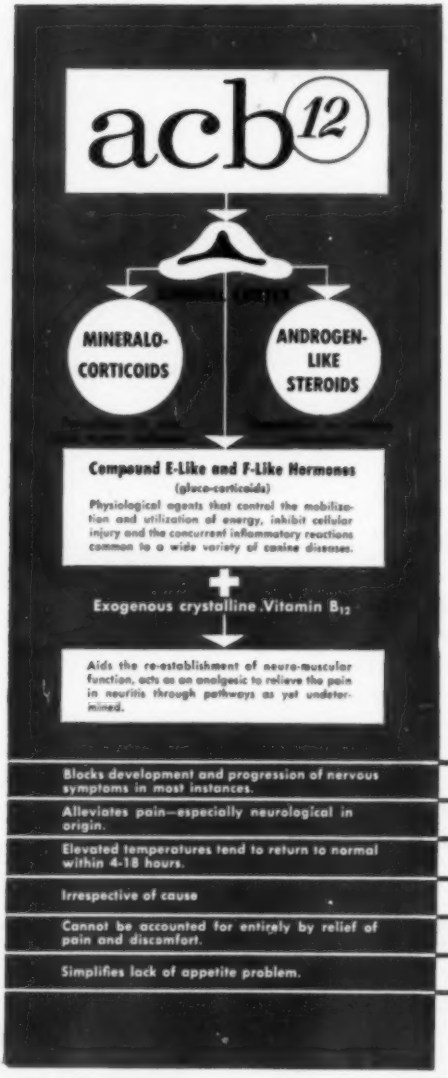
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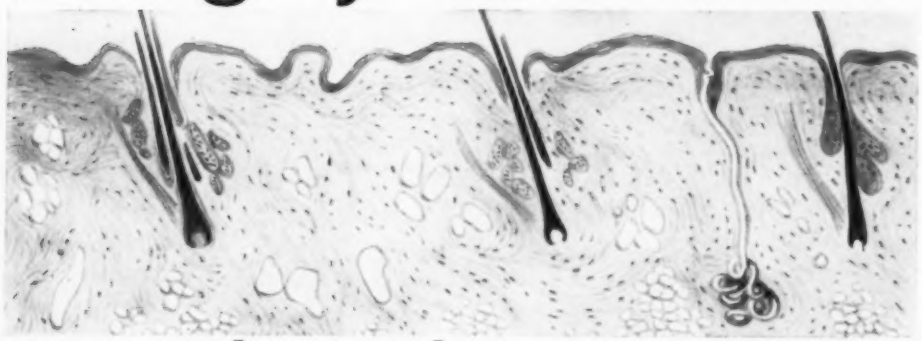

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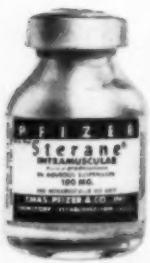

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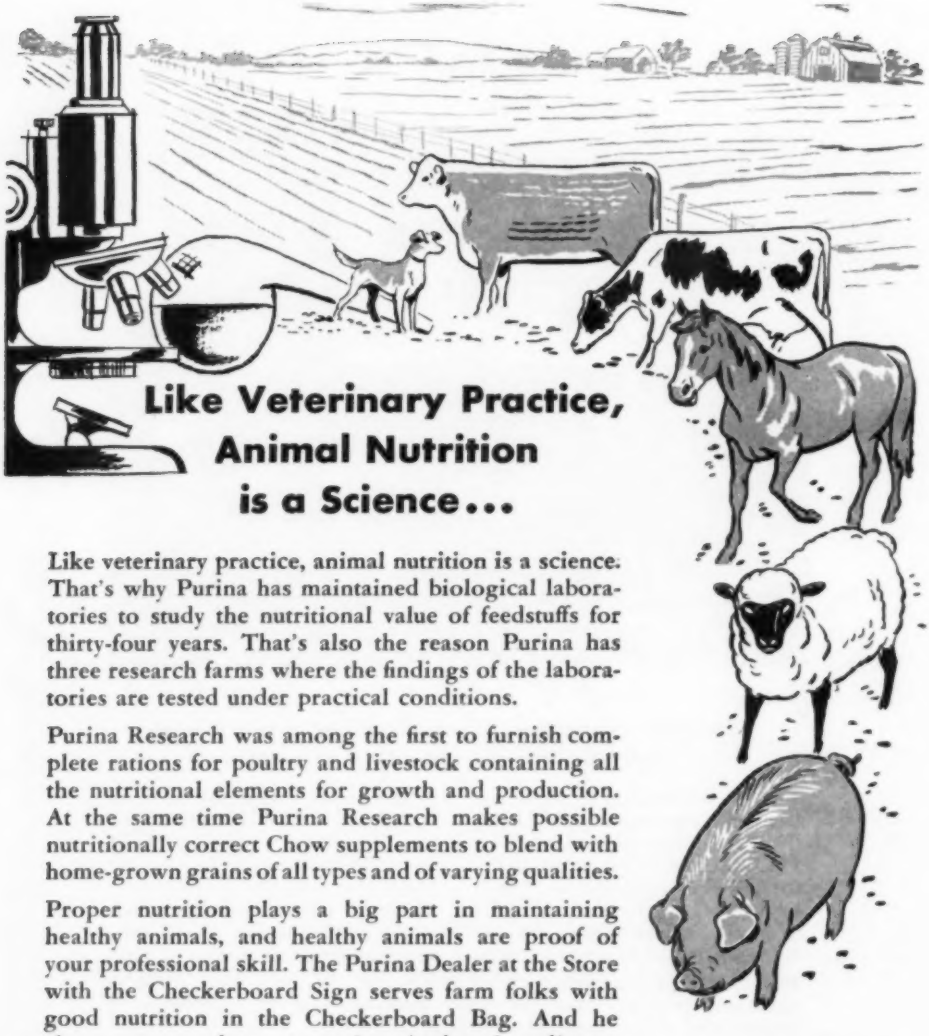

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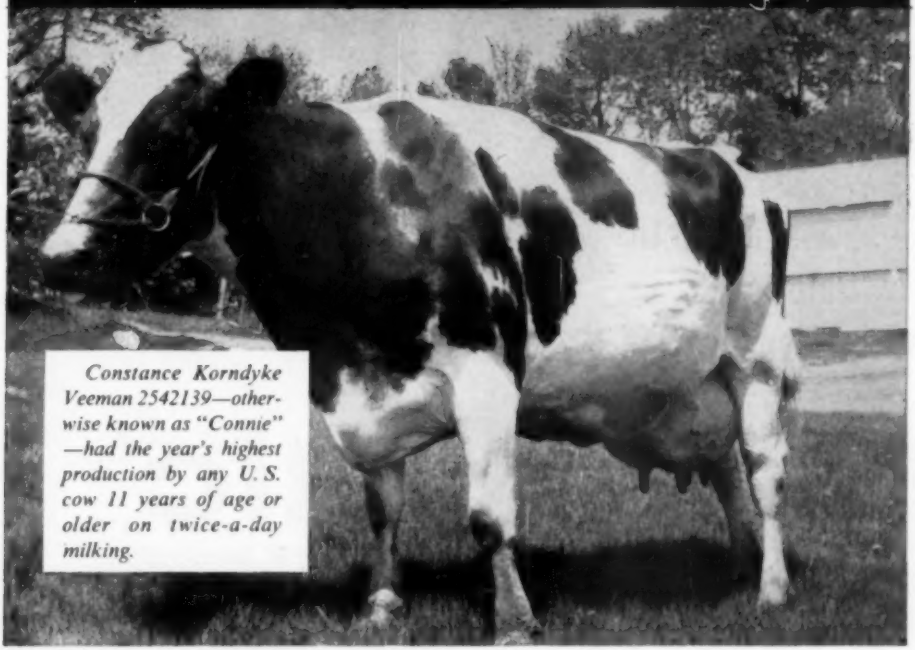

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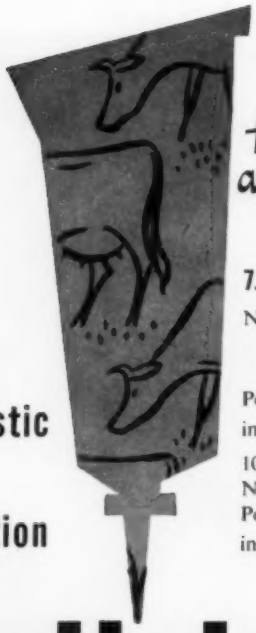

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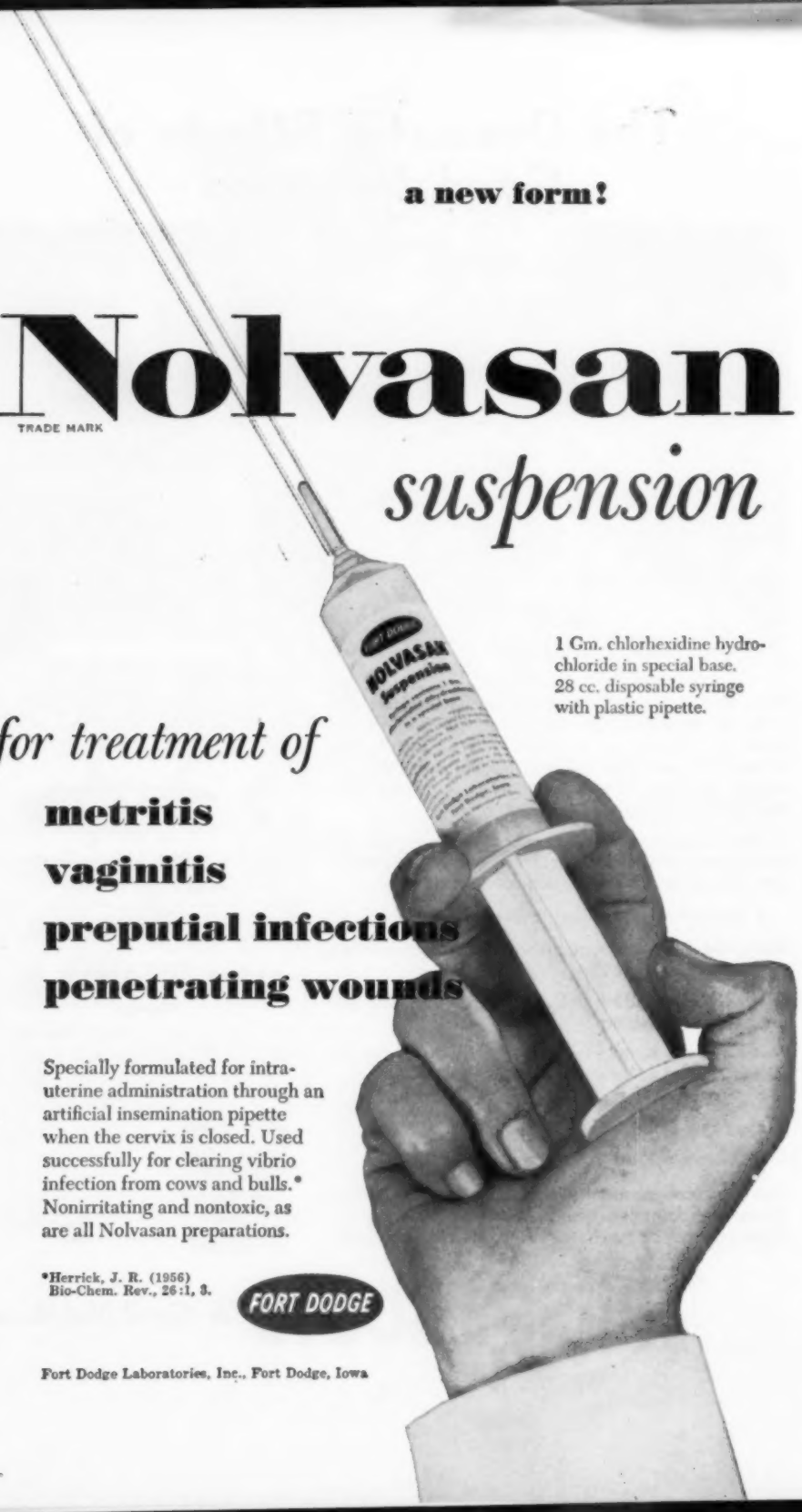

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*Herrick, J. R. (1956) Bio-Chem. Rev., 26:1, 3.

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Evidence for the Role of Wildlife in Epizootics of Vesicular Stomatitis

L. H. KARSTAD, D.V.M.; E. V. ADAMS, B.S.;
R. P. HANSON, Ph.D.; D. H. FERRIS, Ph.D.

Madison, Wisconsin

VESICULAR STOMATITIS was first recognized as a naturally occurring disease among swine in the United States in 1943.[2,3] In 1952, it was observed among swine in Georgia and, since then, it has been recognized each summer in southeastern Georgia and, less frequently, along the entire coastal plain from Virginia to Louisiana. Horses and cattle have also been infected. The reservoir of the virus and the route of natural transmission among these species has not been determined.

For this reason, it was suggested that certain species of wildlife may play a part in epizootics,[1] either as carriers or as reservoirs of the virus. The exploration of this possibility was the chief aim of a field investigation carried out by the Wisconsin Agricultural Experiment Station with the support of the Animal Disease Eradication Branch of the U.S. Department of Agriculture. Field work was concentrated in the known enzootic area in southeastern Georgia. Primary attention was given to a serological survey, secondary emphasis being placed on the attempted isolation of vesicular stomatitis virus from various mammals, birds, and arthropods.

Wild animals were collected by trapping and shooting. Those species were selected which were most abundant in the vicinity where the disease appeared. Samples of blood and other tissues were taken, as well as parasites encountered on these animals. While some of the virus isolation attempts were carried out in a temporary field laboratory, most of this work and all of the serological work were conducted at the Wisconsin Experiment Station. Serum samples were tested for the presence of specific neutralizing antibodies against New Jersey-type vesicular stomatitis virus, using 10-day chicken embryos as indicator hosts. A significant antibody titer, arbitrarily established for this survey, was defined as that quantity of antibody per milliliter of serum which will neutralize a 10^2 or higher concentration of lethal virus units per milliliter ($l.d._{50}$). Most of the serums which showed virus-neutralizing ability on testing possessed titers of 10^4 $l.d._{50}$ or higher.

Approximately 200 animals, representing 15 different species, were examined serologically. The numbers of animals of several species obtained were too few to allow inferences to be drawn of their status. Raccoon, deer, and feral swine were the only species whose serums yielded a relatively high proportion of positive titers. The results of these tests are summarized (table 1).

TABLE 1—Survey of Significant Antibody Titer

Species	Immature		Mature		Total		Percentage positive
	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	
Raccoon	1	0	30	28	31	28	47
Deer	6	2	4	13	10	15	60
Feral swine	2	5	3	24	5	29	83
Gray fox	....	....	....	....	17	0	0
Opossum	....	....	....	....	8	0	0

From the Department of Veterinary Science, University of Wisconsin, Madison. Paper No. ....., published with the approval of the director of the Wisconsin Agricultural Experiment Station.

Dr. Ferris is now at Graceland College, Lamoni, Iowa.

The observations reported in this paper would not have been possible without the extensive assistance and cooperation afforded the project by the U. S. Army personnel at Camp Stewart, Ga. The deer serums were obtained through the generous cooperation of the directors and field officers of the State of Georgia Game and Fish Commission. Recognition is due the ARS, U.S.D.A., for support of the project and for much assistance, both in the planning and in the carrying out of field investigations.

Attempts to isolate vesicular stomatitis virus from avian and mammalian tissues and from arthropods taken in the area were unsuccessful. It was felt that the chances of success would have been greatly increased had it been possible to process more of the collected materials while fresh, rather than subjecting them to varying lengths of storage in the frozen state.

Without further investigation, we must not assume that deer, raccoon, or feral swine are essential for the continued recurrence of vesicular stomatitis in the Southeast. It is possible that they have a role in the perpetuation and spread of the disease, but further work may show that they, like the cow, horse, and domestic hog, are capable of receiving the infection from some common source, yet not of becoming convalescent carriers. Studies of experimentally induced vesicular stomatitis infections in several wild vertebrate species are now in progress. It is hoped that subsequent observations will better enable us to evaluate the potentialities of these species as long-term carriers or reservoirs of the virus.

Attention is also being directed toward the possibility of a virus reservoir being found among lower forms of animal life—such animals as are found in abundance in the swampy environment typical of the enzootic area. The omnivorous raccoon and swine, which feed on many kinds of small animals, could act in a secondary capacity to build up the "pool" of virus which initiates the appearance of the disease each season.

SUMMARY

In a serological sampling of wildlife populations in southeastern Georgia, 72 of the 118 raccoon, deer, and feral swine collected yielded significantly high titers of neutralizing antibody against New Jersey-type vesicular stomatitis virus. A few of the possible implications of these observations are pointed out. Further investigations are indicated.

References

[1]Hanson, R. P.: The Natural History of Vesicular Stomatitis. Bact. Rev., *16*, (1953): 179-198.

[2]Schoening, H. W., and Crawford, A. B.: Outbreak of Vesicular Stomatitis in Swine and Its Differential Diagnosis from Vesicular Exanthema and Foot-and-Mouth Disease. U.S.D.A. Circ. 734, July, 1945.

[3]Schoening, H. W.: Vesicular Stomatitis in Swine. Proc. U.S. Livestock San. A. (1945): 390-395.

Correction in Index of Volume 128

Because of last-minute changes in the make-up of the June 15, 1956, JOURNAL, due to space required for reporting the situation regarding the Veterinary Corps, an error was made in not deleting the following title, "Electrophoresis in the Diagnosis of Rabies," from the index of volume 128, as the item did not appear in that volume.

Two More Brucellosis-Free States

The states of Washington (June 1) and Wisconsin (June 6) have been designated as "modified certified brucellosis-free" by the U.S.D.A. They are the fourth and fifth states so designated, Maine, New Hampshire, and North Carolina having gained this status prior to 1954.

In the nation, more than 4,000 practicing veterinarians are aiding in brucellosis control on a part-time basis and each month about 2.5 million cattle are screened by the milk ring test, 1.5 million are blood-tested, and 0.5 million calves are vaccinated.

Congress recently authorized an additional $20 million a year (to July, 1958) to continue this program.—*U.S.D.A. Release, Washington, D. C., June 11, 1956.*

F.D.A. Halts Use of Antioxidant

The Food and Drug Administration has recommended to the feed industry that the use of DDPD (diphenyl-p-phenylenediamine), the antioxidant used for two years in poultry feeds to protect the vitamin E content so essential in preventing encephalomalacia or crazy chick disease, be discontinued and that unused lots be recalled. Recent studies indicate that the commercial DDPD currently in use causes toxic effects when fed to pregnant rats. Research is being continued.—*Am. Feed Mfr. A. Release, April 16, 1956.*

Leptospira in Horses

The attention of readers is directed to the letter in "Correspondence" (adv. p. 46), one of several received regarding the article, "The Incidence of Leptospira in Horses—A Laboratory Report," which appeared in the June 15 issue (p. 601).—Ed.

Rabies in the United States in 1955

The 5,844 cases of rabies reported in the United States during 1955 were distributed among the animal species as follows: dogs, 2,657 (45.5%); foxes, 1,223 (21.0%); cattle, 835 (14.0%); skunks, 580 (10.0%); cats 343 (6.0%); other large domesticated animals, 89 (1.5%); and other wild animals, 112 (2.0%). The latter group included: 37 raccoons, 18 wildcats, 14 bats, 10 squirrels, 8 coyotes, 6 civet cats, 2 wolves, and 17 miscellaneous. Five human cases were reported.

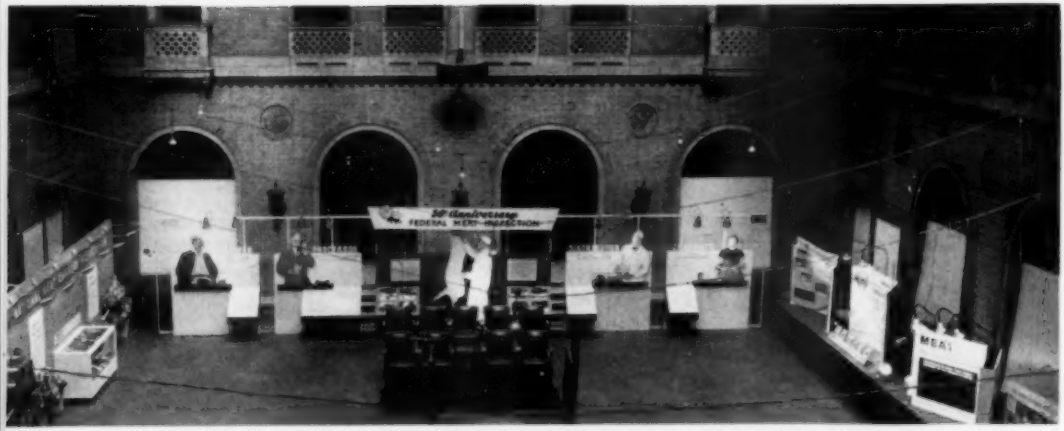
The states reporting the most cases were: Texas, 704 (70% dogs); New York, 517 (46% cattle, 32% foxes); California, 425 (58% dogs, 33% skunks); Virginia, 373 (54% foxes, 27% dogs); Alabama, 356 (60% dogs); and Iowa, 311 (50% skunks, 19% cattle).

No cases were reported in the New England states and none in the northwestern states except in 3 bats in Montana.

Of the fox cases, 51 per cent were in seven southeastern states; 21 per cent in New York and Pennsylvania; and 13 per cent in Texas and Louisiana; leaving only 15 per cent for the other 37 states. Of the skunk cases, 60 per cent were in ten cornbelt states—27 per cent in Iowa, 24 per cent in California, 10 per cent in Texas, and 6 per cent in the other 36 states.

WHO Studies of Rabies Control

In 1949, the World Health Organization assigned a rabies consultant and about 85 technically trained personnel to the border area between the United States and Mexico to set up measures for the control of rabies. In 1952, the antirabies work was extended over all of Mexico. Through education and demonstration, they have worked to eliminate stray dogs and predatory and other wild animals which may carry the virus. These workers also have studied the distribution and migration of bats and have assisted in improvement and testing of phenolized vaccine for dogs, avianized vaccine for dogs and for cattle, human vaccine, and hyperimmune serum.—*Chronicle, WHO, April, 1956.*

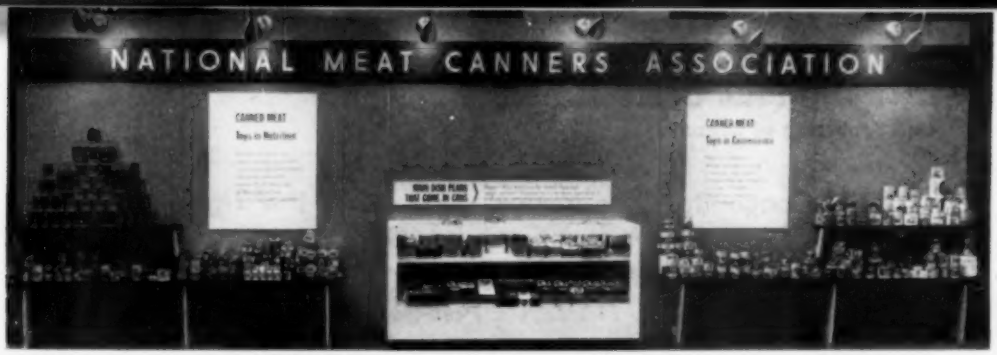


The patio of the Administration Building of the U. S. Department of Agriculture, showing the National Canners Exhibit on the left, Meat Inspection in the center, and the National Live Stock and Meat Board on the right. The fourth side of the patio was occupied by the American Meat Institute exhibit.

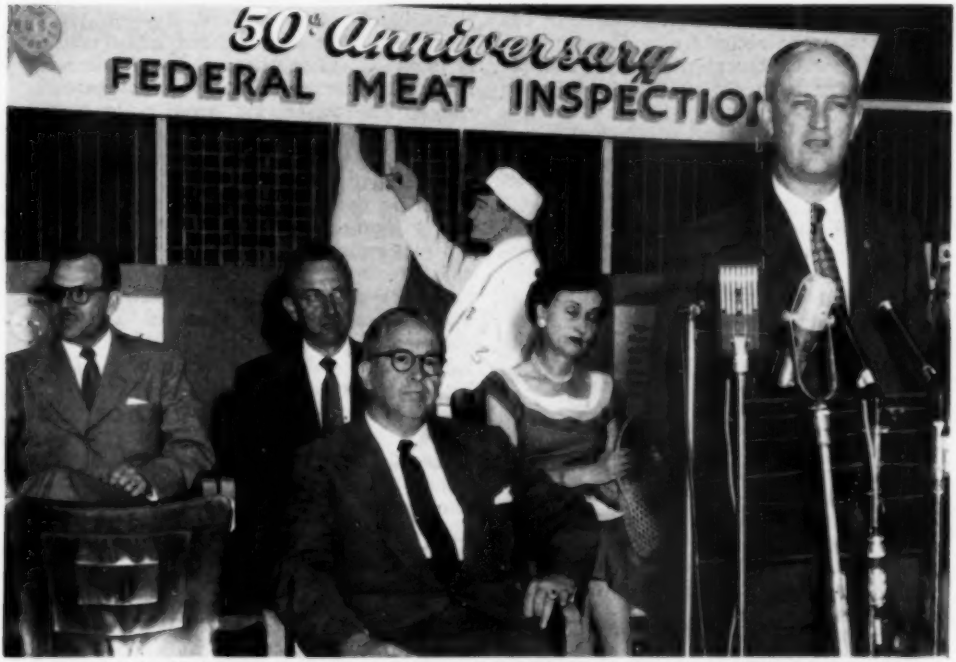
An editorial on the fiftieth anniversary of federal meat inspection appeared in the April 1, 1956, JOURNAL (p. 366).

A unit of the exhibit commemorating the golden anniversary of the Federal Meat Inspection in Washington, D. C. The exhibit, in which the livestock and meat industries are taking part, was located in the patio of the Administration Building of the U. S. Department of Agriculture, where it was on view throughout June. The exhibit is now being shown in other parts of the country at various expositions and meetings.

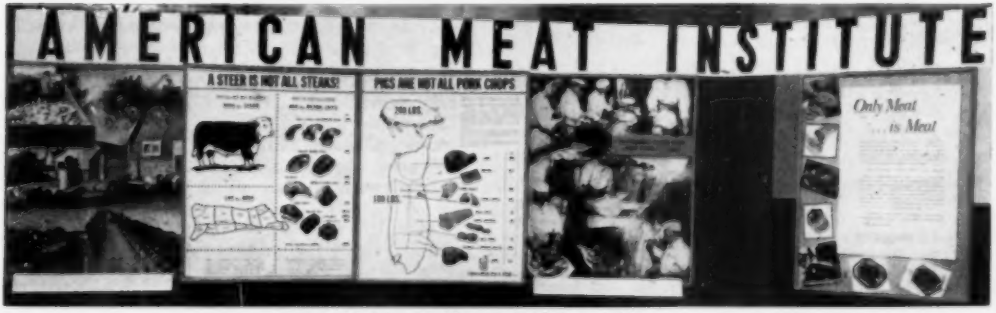
The National Live Stock and Meat Board unit of the exhibit.



National Meat Canners Association unit of the exhibit.



Dr. M. R. Clarkson, deputy administrator, Agricultural Research Service, U. S. Department of Agriculture, spoke at the opening of the exhibit commemorating the golden anniversary of Federal Meat Inspection in the patio of the U.S.D.A. Administration Building, Washington, D. C. Seated in the front row is Secretary of Agriculture Ezra Taft Benson; in the back row (left to right) are Milan D. Smith, executive assistant to the Secretary; Dr. A. R. Miller, chief of the Meat Inspection Branch, U. S. D. A.; and Elinor Lee, president, Women's Advertising Club, of Washington D. C., representing consumer interest.



American Meat Institute unit of the exhibit.

Surgery and Obstetrics
and Problems of Breeding

Congenital Diaphragmatic Hernia in the Tiger—Two Case Reports

ROBERT S. BRODEY, D.V.M., V.S., and HERBERT L. RATCLIFFE, M.S., Sc.D.

Philadelphia, Pennsylvania

CONGENITAL diaphragmatic hernias have not been encountered hitherto in animals at the Philadelphia Zoological Gardens where necropsy records now include over 6,000 mammals. Recently, however, this defect was seen in the 2 female Siberian tigers (*Panthera tigris longipilis*) from a litter of 4 (2 males and 2 females) which were born at the Copenhagen Zoo, May, 1953, and were received at the Philadelphia Zoological Gardens on Oct. 15, 1953. On arrival, their behavior and general condition suggested that growth and development were progressing normally. However, the tails of 2 cubs were unusually short and the tail of a third was deformed laterally at its tip, suggesting an abnormality of the last two coccygeal vertebrae.

CASE REPORTS

Case 1.—Two weeks after their arrival, the entire litter suffered a severe gastrointestinal upset following an unusually heavy feeding. Three of the animals recovered rapidly during the next three days, although 1 of them passed a liquid stool flecked with blood. However, the fourth tiger became weaker and, despite therapy, it died on the third day.

Necropsy Findings.—The carcass was in a good nutritive state. A line of stainless steel sutures was present in the abdominal wall, covering an area of 10 cm. which centered over the umbilicus. This wound was well healed by dense fibrous connective tissue. Presumably, a herniorrhaphy had been performed at the Copenhagen Zoo.

The significant pathological change was a defect, 10 cm. in diameter, which affected the left leaf of the diaphragm in the region of the esophageal hiatus. This hernial sac contained the fundic portion of the stomach and 30 cm. of the jejunum. A 15-cm. segment of the jejunum was intensely hyperemic with a thickened, hemorrhagic wall and mucosa, and hemorrhage into its lumen. The mesenteric veins of the affected area showed a sharply defined line of early thrombosis that corresponded approximately to the lip of the hernia. The ileum was irregularly congested but was not hemorrhagic. The mesenteric lymph nodes were enlarged and edematous. There was congestion of the liver, spleen, adrenals, kidneys, and thyroid glands.

During the next 16 months, the remaining 3 tigers had intermittent attacks of indigestion and diarrhea, along with intervals of anorexia and depression lasting two to five days. Usually these attacks followed unauthorized excessive feedings.

Case 2.—On April 1, 1955, this animal had a severe spell of vomition during which large amounts of black material comprised the bulk of the vomitus. The tiger was in a state of collapse when the keeper observed it that morning but, by noon, it was somewhat improved. Complications from a diaphragmatic hernia similar to that of its litter mate were suspected, so the animal was crated and transported to the University of Pennsylvania veterinary hospital.

General anesthesia was induced by the slow injection of 15 gr. of pentobarbital sodium into the dorsal coccygeal vein (1 gr./11.7 lb. for the 176-lb. animal). Lateral radiographs of the thorax and abdomen revealed a cone-shaped enlargement in the upper left quadrant of the diaphragm, extending cranially to the level of the sixth rib (fig. 1). No evidence of intestinal obstruction was observed.

A routine hemogram revealed the following:

Hemoglobin	9.1 Gm./100 ml.
Erythrocytes	5,600,000/cmm.
Leukocytes	16,000/cmm.
Neutrophils	89 per cent
Segmented	8 per cent
Nonsegmented	9 per cent

From the clinical and radiological findings, a tentative diagnosis of diaphragmatic hernia was made and the tiger was prepared for surgery. Dextrose (5%) in saline solution was given intravenously

Associate in veterinary surgery, School of Veterinary Medicine, University of Pennsylvania (Brodey); and from the Penrose Research Laboratory, Zoological Society of Philadelphia (Ratcliffe), Philadelphia, Pa.

The authors thank Mr. Joseph Devlin, staff member of the Philadelphia Zoological Society, for preparation of the diagrams used in this paper.

throughout the operation. A laparotomy incision was made just posterior and parallel to the last rib on the left side.

Once the abdominal cavity was opened, a huge defect was palpated in the left upper diaphragm. Loosely contained in this large hernial sac were the stomach, spleen, duodenum, and a large portion of the liver. The hernia involved the region of the esophageal hiatus and the thin-walled elastic hernial sac extended to the base of the heart. Because of the extensive nature of the diaphragmatic defect and the poor condition of the patient, the viscera within the sac were replaced in the abdominal cavity and the surgical wound was sutured. An additional 5 gr. of pentobarbital was required to complete the surgery.

The tiger appeared to be making a satisfactory recovery but was found dead the following morning.

Necropsy Findings.—The larynx, trachea, and right side of the bronchial tree contained a considerable amount of mucinous material, along with large black flecks of digested blood. The smaller bronchi on the right were filled with this black material and the caudal surfaces of the right lung were dull purple and firm. This area of intense congestion faded out cranially and the remainder of the right lung was pale red to red-brown and crepitant. The left lung was irregularly congested and crepitant throughout.

The heart was relatively small, weighing 320 Gm. The myocardium was dark purple and rather flabby. All the chambers were moderately dilated, especially on the right side. Most of the thymus was replaced by fat, except several remnants which were purple and firm.

The diaphragm was grossly deformed (fig. 2). The aorta was surrounded by a heavy muscle mass that was continuous along the lateral walls of the chest but, just to the left of the aortic hiatus (fig. 2, A), this muscle was replaced over a wide space by delicate fibrous tissue. This passed in a thickening mass to the right, to join with a triangular leaflet of muscle that originated to the right of the aorta, but curved again to the left in another tendinous structure to surround an immense fault (fig. 2, H) that had developed about the esophageal hiatus. Thus, the central portion of the diaphragm was crossed by a heavy band of connective tissue that curved across from the right to the left. The hiatus of the vena

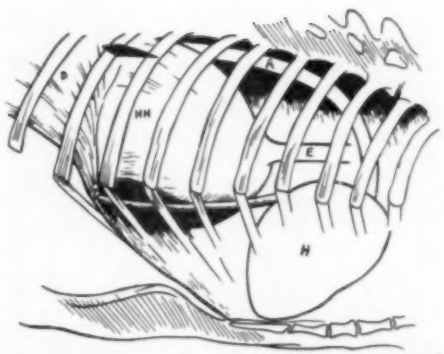


Fig. 1—Diagram showing relationship of esophageal hiatal hernia to other thoracic structures in a tiger (case 2). Hiatal hernia (HH); aorta (A); caudal vena cava (V); heart (H); esophagus (E); diaphragm (D).

cava (fig. 2, V) was near the center of a smaller sheet of fibrous tissue present below the dense band just described. This oval-shaped area was connected to the thoracic wall by heavily developed muscle bands. The hiatus of the vena cava (fig. 2, V) was located about 4 cm. from the costal margin and 2 cm. to the right of the midline. The fault (fig. 2, H) in the diaphragm measured approximately 10 cm. in diameter. Most of the stomach and spleen were loosely contained in this cavity and could be readily withdrawn. The esophagus

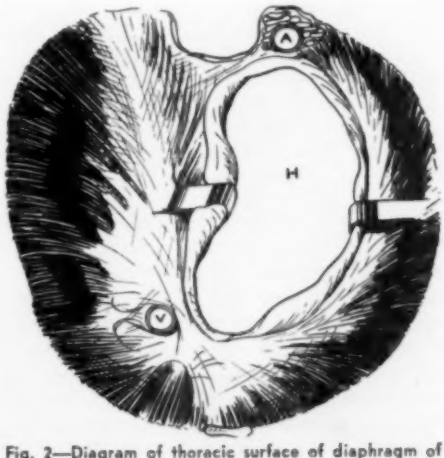


Fig. 2—Diagram of thoracic surface of diaphragm of a tiger (case 2) showing location of large esophageal hiatal hernia. Esophageal hiatal hernia (H); hiatus aorticus (A); hiatus of vena cava (V).

passed through the dorsal part of the hernia.

The parietal pleura over the base of the left diaphragm was thickened by shaggy masses of congested fibrous tissue. The mediastinal reflection of the left pleura was displaced 5 cm. laterally and formed part of the wall of a large diverticulum of the diaphragm. Another portion of the lining of this diverticulum consisted of the posterior mediastinal tissues.

The mouth and esophagus contained abundant mucinous material in which there were many large, black, blood flecks. There were deep erosions in the cardiac portion of the esophagus but no perforations were observed.

The liver showed passive congestion at its outer margins. The adrenal cortices were pale yellow-brown, and the medullas were narrow and inconspicuous. The total weight of the adrenal glands was 16 Gm.

DISCUSSION

The first tiger died at 7 months of age as the result of strangulation of a loop of jejunum in the hernial sac.

The second tiger died at 23 months of age due to multiple complications of a diaphragmatic hernia. In the normal animal, the esophageal hiatus acts as a stopcock mechanism preventing regurgitation of the highly acid gastric juice into the cardiac portion of the esophagus.[1] The incompetent hiatus of this animal permitted constant influx of gastric juices which, over a long period, caused a diffuse ulcerative esophagitis. On April 1, 1955, sudden esophageal hemorrhage occurred, resulting in severe vomition and a shocklike syndrome. Some of the vomitus, containing gastric juices and digested blood, was aspirated into the right lung causing extensive damage to the respiratory epithelium and lung parenchyma.

Atrophy of the adrenal glands is a common finding in zoo animals[2] and, thus, these animals withstand stress poorly. The addition of pentobarbital sodium anesthesia combined with surgical manipulation contributed further to the weakened condition of the tiger. Death was attributed to cardiovascular collapse following the return of vomiting postsurgically, during which vomitus was again aspirated into the right lung and the stomach and spleen were drawn back into the hernial sac.

It is postulated that both hernias were congenital, as the area of diaphragmatic involvement was similar in both tigers. No history of trauma was available in either case and necropsy revealed changes indicating a developmental anomaly rather than traumatic rupture. The history of chronic indigestion also suggests that the condition was present from birth.

SUMMARY

Congenital diaphragmatic hernia in 2 female tiger litter mates is described. In addition, the first tiger apparently had a congenital umbilical hernia.

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[1]Harrington, S. W.: Esophageal Hiatal Diaphragmatic Hernia. Surg., Gynec. and Obst., *100*, (1955): 277-292.

[2]Christian, John J., and Ratcliffe, H. L.: Shock Disease in Captive Wild Mammals. Am. J. Path., *28*, (1952): 725-737.

Intrafollicular Ovarian Pregnancy

Ectopic pregnancy in the human ovary has been reported in 155 properly documented cases. The last, a mother of three, who had been menstruating regularly, suddenly felt a severe sharp abdominal pain. This was accompanied by weakness and vomiting.

Laparotomy revealed hemorrhage in the peritoneal cavity and a mass, with the uninvolved fallopian tube adherent to it, suspended from the ovarian ligaments.

After removal of the 12- by 6- by 7-cm. mass, dissection revealed several cystic cavities, one of which was lined by smooth, shiny membrane and was filled with amniotic fluid, a placenta, its membrane, and cord attached to a 10 cm. fetus (90-day size). The placenta, which was firmly attached to the wall of this cavity, was 10 cm. in diameter.

How fertilization occurs within the ovary is a moot question but the follicle may burst laterally, interfering with the escape of the ovum, or the force of the intrafollicular pressure when released may be insufficient to free the cumulus oophorus. The sperm must transmigrate the peritoneal cavity to reach the ovum.—*Am. J. Surg., June, 1956.*

Hair Balls in Rumen of Heifer.—In relieving tympany in a heifer, 18 months old, the trocar came in contact with a hard object in the rumen. Necropsy later revealed 18 hair balls ranging from ½ to 3½ lb.—*Indian Vet. J., March, 1956.*

Fractured Mandibular Symphysis in a Cow

W. H. BECKENHAUER, D.V.M.

Fort Collins, Colorado

On Oct. 27, 1954, a 4-year-old Aberdeen Angus cow was presented for examination at the veterinary clinic of Colorado A. & M. College. She had been on pasture and the owner had noticed that for about two weeks she had been "going downhill." When brought into a drylot and offered ensilage and hay, she tried but was unable to eat.

On examination, the cow was found to be in fair condition. She was nursing a 2-week-old calf. Her temperature was 104.0 F. Examination of the oral cavity revealed an open wound in the mucosa, following and extending into the mandibular symphysis (fig. 1). The central incisor teeth were separated about 1 inch. The rami of the mandible could be moved independently.

Several radiographs were made of the area by placing a small casette in the animal's mouth and directing the x-ray beam upward through the tissues to the film. Examination of the first radiograph (fig. 2) showed a fracture of the mandibular symphysis, with areas of radiotranslucence around the fracture line, probably caused by infection. (Figure 3 is a radiograph of the same part of a normal animal.)

Fig. 1—Open wound in the oral mucosa, following and extending into the mandibular symphysis of an Aberdeen Angus cow.

The diagnosis was: fractured mandibular symphysis, cause unknown. Due to the areas of partial bone resorption, it was considered possible that this was either a pathological fracture or that the fracture may have been compound, with resulting invasion by pathogenic organisms.

Dr. Beckenhauer is assistant professor of clinics and surgery, Veterinary Hospital, Colorado A. & M. College, Fort Collins.

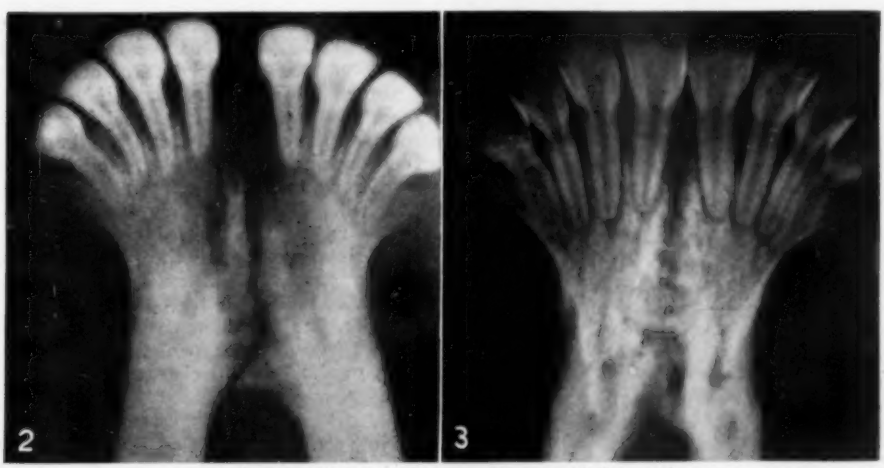

Fig. 2—Radiograph showing fracture of the mandibular symphysis.

Fig. 3—The mandibular symphysis of a normal cow.

Fig. 4—Radiograph showing bone screw and stainless steel wires around the incisor teeth.

Although good surgical principles indicated that a fixation device should not pass through possibly infected tissue into apparently normal tissue, it was decided that a bone screw would provide the most practical means of fixation in this intractable range cow. Accordingly, a 2½-inch stainless steel bone screw was inserted from the left side of the body of the mandible across the fracture line into and through the right side of the body of the mandible. Stainless steel wires were placed around the incisor teeth to bring them into more normal alignment (fig. 4).

Fig. 5—Radiograph showing healed fracture. The bone screw had broken and the fragments have migrated within the body of the mandible.

Following surgery, a needle was inserted from the ventral surface of the chin into the fracture site and pus was aspirated. Smears and cultures of this pus showed streptococci, staphylococci, *Escherichia coli*, and diphtheroids. Sensitivity tests showed complete inhibition by terramycin® and chloromycetin,® partial inhibition by neomycin and aureomycin,® and no inhibition by achromycin,® penicillin, streptomycin, sulfadiazine, sulfamerazine, triple sulfonamides, and bacitracin.

The day after surgery, the cow ate a small amount of hay and grain. Rumination was observed two days postoperatively, and she continued to eat grain and some hay during hospitalization.

The cow was given a two-day course of dihydrostreptomycin, 5 Gm. once daily, injected into the area of the fracture. Following receipt of the results of the culture and sensitivity tests, the owner was advised that a course of parenterally administered antibiotics was indicated. However, he objected to the cost of such treatment, so a guarded prognosis was given and he was advised to market the cow as soon as the calf could be weaned. The cow was discharged from the hospital on November 11.

On May 18, 1955, the cow was returned for examination and reconsideration of the advisability of slaughter. The cow had done well, had raised her calf, had partially raised another calf, was now in good condition, and was having no difficulty eating.

On examination, the mouth lesion was found to have healed completely and the rami of the mandible could not be moved independently. The wires around the teeth were removed and the fracture site radiographed.

The radiograph showed good healing of the fracture, although the bone screw had broken and both fragments of the screw had migrated within the body of the mandible (fig. 5). No attempt was made to remove the screw fragments.

The animal was discharged with a favorable prognosis.

Now comes a claim that the sex of chicks may be controlled by dipping the eggs in hormones—a dip in estrogen brings females, in androgen brings males.—*Prog. Farmer, May, 1956.*

A Mucosal-Type Disease in Cattle in Virginia

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WITHIN THE PAST several years attention has been drawn to the numerous reports in the veterinary literature describing the occurrence of diseases in cattle which have apparently been clinical variables of each other.[1-15] These diseases have been categorized as mucosal diseases, viral diarrheas, or upper (anterior) respiratory syndromes. These conditions have been reported from a number of areas with research workers turning increasing attention to etiological studies. Comparisons of these various conditions immunologically, pathologically, and clinically have indicated that apparently distinct but possibly related entities exist. Further, several of these syndromes may exist in a particular area with clinical variations of each type helping to confuse the picture.

The similarities between these diseases and exotic diseases such as rinderpest have been pointed out by federal regulatory officials.

This report deals with another possible variant of this group of diseases observed in the state of Virginia.

CLINICAL REPORT

Herd 1.—The disease first occurred on an experimental agronomy farm where cattle were used to indicate grazing values in a pasture improvement program. Two herds of cattle were maintained in separate areas with different groups of attendants. One herd was composed of Holstein-Friesian dairy animals and the other of Aberdeen Angus and Hereford beef animals. This disease occurred in a portion of the beef herd in the spring of 1955. No additions had been made to either herd since the fall of 1954.

Thirty-six Aberdeen Angus calves (18 steers; 18 heifers), dropped from July through September, 1954, were weaned on March 20, 1955, divided into four groups and put in pens (approximately 24 by 12 ft.). Each group received different regimens of grain, silage, and hay, but all continued to gain weight during this ten-day weaning period. They were then returned to the drylots where they had wintered. Twenty-three days after weaning, these 36 calves were removed to eight experimental pastures, 4 to 6 acres each, and 1, 2-year-old Aberdeen Angus heifer or steer was added to each lot.

On March 27, a week after being removed to the weaning pens, 1 calf suddenly lost weight, would not eat, and developed dyspnea. The veterinarian servicing the herd found symptoms of pneumonia, with cough, nasal discharge, and a high temperature. The animal was isolated and treated parenterally with sulfapyridine and penicillin. Improvement of appetite and alleviation of respiratory symptoms was noticed for the next week. About ten days after onset, the calf's feet had become tender and it had developed slobbering, a nasal discharge, and a fetid mucoid diarrhea. Lameness and diarrhea increased in severity and the calf became severely dehydrated and died on April 15, 19 days from the onset of symptoms.

On April 19 and 23, 2 more calves, now on pasture, developed a fetid diarrhea, tender feet, sudden dehydration, and a slight nasal discharge. No pneumonic symptoms could be detected. These animals were isolated and treated with sulfathiazole and terramycin® but died on May 10 and 20, respectively, 19 and 29 days after onset.

On May 12, the authors examined 9 Aberdeen Angus weanling calves in an isolation shed. Their temperatures ranged from 103 to 104 F. All showed a slight mucopurulent nasal discharge, a variable degree of lacrimation, and ulcerations of the buccal cavity. Examination of the feet revealed extensive ulceration in the interdigital spaces causing lameness and disinclination to move. A nonpersistent cough was easily induced and slight râles were heard on auscultation. A fetid, dark, mu-

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The assistance of Dr. J. T. Laningham in the clinical and experimental phases of this work is gratefully acknowledged. The authors also thank Dr. John Sieburth for his assistance in the tissue culture phase of this study.

coid diarrhea was present, with marked dehydration and loss of weight.

The early stages of the disease were studied in 2 calves on pasture lots. One of these showed a temperature of 105 F., dyspnea, moist râles in both lungs, slight salivation and lacrimation, but no diarrhea or lameness. Pinpoint ulceration and hyperemia were evident behind the corner incisor teeth and on the hard palate. The other calf showed salivation, reddening of the buccal mucosa, lameness, and early multiple coalescing ulceration of the interdigital spaces.

Approximately eight weeks from the onset of the initial illness, all 36 weanling calves were involved with varying degrees of clinical symptoms; 14 died two to four weeks after onset and the rest recovered within one month. Since the pastures were on an isolated portion of the farm and morbidity was approaching 100 per cent, no further attempts at isolation were made. Neither the 2-year-old steers and heifers, which were in pasture contact with these sick calves, nor other cattle on the farm showed any evidence of the disease.

Herd 2.—The disease also occurred, during the fall of 1955, in a small commercial herd of beef cattle approximately 250 miles from the location of herd 1. The herd was composed of 13 Aberdeen Angus and crossbred weanling calves (about 6 months of age), with 10 brood cows and some calves 2 to 3 months old.

Attention was drawn to this herd when necropsy of 2 affected animals brought to the college laboratories revealed lesions identical to those found in the first herd. All 13 animals in the 6-month-age group were in poor condition, with rough coats. A loss of hair on the face and around the eyes indicated past lacrimal discharge. Varying degrees of stiffness and lameness were noticed and 1 animal had a large healing ulcer on the left nostril.

The other animals in herd 2 appeared sleek and fat. It was concluded that the weanling group was in the recovery phase of the same mucosal disease described in herd 1.

Experimental Procedure

Six of the affected animals from herd 1 were removed to virus isolation stalls. Two normal, 6-

TABLE I—Comparison of Bovine Mucosal Diseases

Characteristics	Rinderpest	Ramsey mucosal	Virus diarrhea-New York	Virus diarrhea-Indiana	Virginia
Onset	Sudden T. 105 F.	Sudden T. rise	Symptoms before T.	Sudden T. rise	T. before symptoms
Incubation	Contact 3 to 8 days?	?	7 to 9 days	1 to 3 weeks	2 to 8 days
Leukopenia	Yes, severe	Yes?	Yes, severe	Yes, constant	Transient before symptoms
Lymphoid tissue damage	Yes, severe	Yes?	?	Yes, mild	?
Transmissible agent	Yes, easy	? with difficulty	Yes	Yes	Yes
Infectivity rate	100%	2 to 50%	33 to 88%	100%	90 to 100%
Mortality rate	90 to 100% U. S.	Over 90%	4 to 8, 50%	4 to 20%	47%
Corneal opacity	No	Yes, 10%	No	Yes, rare (calves?)	(2 cases)
Lameness	No	Yes	No	Yes, frequent	Extreme
Spleen titer	10^4, 10^5	? low	10^{-2} 10^{-3}	?	?
Erosions, digestive tract	Yes	Yes	Yes	Yes	Yes
Erosions, dorsum of tongue	No	Yes, marked	No	No	No
Immune serum	Yes	?	No	No	?
Immune animals	Yes	Yes?	Yes	Yes	?
Diarrhea	Yes	Yes	Yes	Yes	Yes
Primarily upper respiratory	No	No	No	No	No
Neutralization test	Yes	?	?	?	?
Cross-immunity test	Yes	?	VD-immune; suscept. to rinderpest	Not same as N.Y. VD	?
Buccal erosions	Yes	Yes	Yes	Yes	Yes
Necrosis Peyer's patches	Yes, marked	Yes, marked	No?	Yes?	No
Rhinitis	Yes	Yes	Yes	Yes	Yes
Salivation	Yes	Yes	Yes	Yes	Yes, not profuse
High temperature	Yes	Yes	Yes	Yes	104 to 105 F.
Lacrimation	Yes	Yes	Yes	Yes	Yes, slight
Inflammatory hemorrhages, digestive tract	Yes	Yes	Yes	Yes	No
Dehydration	Yes	Yes	Yes	Yes	Yes
Emaciation	Yes	Microscopic	Yes	Yes	Yes
Temperature	Monophasic	Yes	Diphasic	Monophasic	Diphasic
Liver lesions	Not described	? monophasic	Not described	Not described	Marked gross

T. = temperature; VD = virus diarrhea.

week-old, dairy-type calves were shipped in the same truck with the sick Aberdeen Angus calves. After arrival, seven hours later, the 2 dairy calves were removed from the truck and isolated. Three days after arrival, these 2 contact-exposed calves developed temperatures of 104 to 105 F., with mucopurulent nasal discharge and salivation. Diarrhea and lameness began on the ninth day after arrival. These calves became moribund two weeks later and were destroyed for necropsy.

Two of the Aberdeen Angus calves became moribund three days after arrival. (All moribund calves were destroyed for necropsy.) Citrated blood was removed aseptically from 1 moribund calf and filtered through a Seitz filter containing a No. 1 serum pad. Then 10 ml. of the filtrate was inoculated intramuscularly into a 6-week-old dairy-type calf. Both filtered and unfiltered blood was inoculated into Fletcher's and Schüffner's leptospiral mediums and into standard aerobic and anaerobic bacteriological mediums, with negative results. The experimentally inoculated calf showed a diphasic temperature reaction and a transient neutrophil leukopenia (chart 1).

A 10 per cent spleen suspension from the same Aberdeen Angus calf was similarly filtered, bacteriologically examined, and 10 ml. of the filtrate was inoculated intramuscularly into another 6-week-old dairy-type calf. The blood and temperature reactions were identical to those in the calf which had received the blood filtrate. Filtered citrated blood was subsequently serially passed through 3 more calves, each of which developed a consistent diphasic temperature curve and a transient leukopenia.

Clinical symptoms in experimental calves were mild and transient. Slight salivation and lacrimation occurred on the fifth to eighth days after inoculation, with reddening and pinpoint ulceration of the buccal cavity. There was some loss of appetite during the febrile periods; diarrhea was mild and transient (not more than 24 hours); but lameness was not apparent although 1 second-passage calf showed interdigital erosions.

Attempts were made to propagate the infectious agent *in vitro*. Heparinized blood obtained from 1 of the original Aberdeen Angus calves was inoculated into the yolk sacs of embryonating chicken eggs causing 50 per cent embryonic mortality between the third and sixth days. A transient leukopenia developed in a calf inoculated with a 10 per cent suspension of the yolk sac membranes.

Spleen filtrate was inoculated into chick heart plasma explants.[9] Although the inoculated explants had an area of outgrowth after 48 hours of incubation at 37 C., this area was smaller and more opaque than in control preparations. This opaque "halo" contained granular and vacuolated cells. The culture fluid was serially diluted and caused detectable cytopathological changes through the 1:10,000 dilution. Similar titers were obtained in two more serial passages from the highest dilution showing change, thereby representing a 1:1,000,000,000,000 dilution of the original inoculum. The propagation of the agent in animal cell culture and its relationship to mucosal disease has yet to be confirmed.

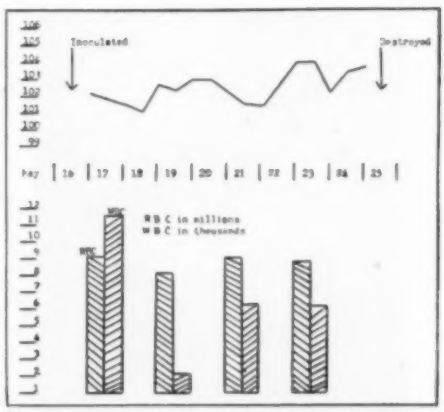

Chart 1.—Record of temperature and blood count of calf with experimental infection.

Guinea pigs (150 to 250 Gm.) were inoculated subcutaneously, intradermally, intramuscularly, and intraperitoneally with both spleen and blood filtrates with no febrile or clinical response. Blind passages were negative in guinea pigs and weanling hamsters (15 to 20 Gm.).

Further negative evidence of the involvement of bovine leptospirosis in the outbreak was obtained by serial serology using the microscopic agglutination-lysis test with live leptospiral antigens (*L. pomona, L. sejroe, L. canicola,* and *L. grippotyphosa*).

GROSS PATHOLOGY

Field cases from both affected herds, and experimental calves from the first herd, were examined at necropsy. The animals with field cases were destroyed when moribund, while the experimental calves were destroyed at intervals following inoculation.

The animals with field cases showed severe dehydration, dry lusterless eyes, variable lacrimation and nasal discharge, and soiling of the tail and hindquarters with fetid, mucoid fecal material. Unilateral corneal opacities were seen in 2 calves but were considered chronic "pink-eye" lesions. Erosions were present in the interdigital space of one or more feet of all animals. They varied from minute, linear, ragged-edged erosions with brownish, granular centers to large, multiple coalescing ulcerations. Secondary necrotizing infection was prominent in the more extensive ulcerations.

Similar lesions, varying from minute

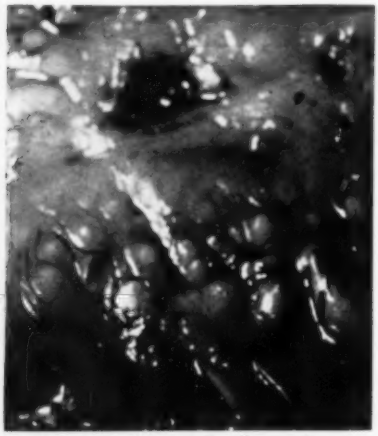

Fig. 1—Enlarged photograph of an ulcer on the buccal surface of the cheek of a calf.

(1 to 2 mm.) erosions to necrotic ulcers 1 cm. or more in diameter, were uniformly observed on the mucosal surfaces of the lips and cheeks (fig. 1), the dental pad posterior to the corner incisors, on the sides of the tongue, on the hard and soft palates, and on the floor of the pharynx. There were *no lesions on the dorsum of the tongue.* Considerable individual variation was observed in the number, location, and severity of these oral lesions. In general, they tended to be scattered and they rarely coalesced. Rarely, a small, fine erosion was encountered in the external nares or the rostral third of the turbinate mucosa.

In the early stages, the lesions in the interdigital space and mouth were small and characterized by ragged edges and finely granular, brown centers. The earliest lesions were raised slightly above the mucosal surface. More advanced, older ulcers presented smooth, indurated, raised edges and central, tightly adherent masses of tough, ragged, brownish yellow necrotic material. Gram-stained smears of this necrotic material revealed actinomycotic-like organisms as well as unidentified cocci and bacilli.

Secondary infection of the oral lesions was frequently accompanied by enlarged, edematous, purulent suprapharyngeal lymph nodes. An occasional necrotic ulcer was present in the dorsal commissure of the vestibule of the larynx. One animal died with cyanosis and respiratory distress as a result of such a necrotic mass occluding the vestibule. No lesions were observed in the trachea.

Multiple fine, linear, brownish superficial lesions were regularly observed in the caudal third of the esophagus but only rarely in the cranial two thirds. These lesions appeared first as a brownish elevation of the mucosa which progressed to superficial, ragged-edged, coalescing ulcerations. Secondary infection seemed less common than in the feet or mouth. One animal, which died after a prolonged course, had several large esophageal ulcers perforating the tunica adventitia.

Pneumonia was observed in about 70 per

Fig. 2—Necrotic ulcerations in the sulcus omasi of a calf.

cent of the field cases and was generally of the fibrinous type with purplish red consolidation of the ventral portions of the apical and cardiac lobes of both lungs. About 30 per cent of the field cases showed interstitial edema in the affected portions of the lungs, similar to that observed in so-called "shipping fever." The bronchial and mediastinal lymph nodes were enlarged, congested, and edematous in animals with severe pneumonia.

Erosions and ulcerations similar to those observed in the mouth and esophagus were found in the esophageal groove and sulcus omasi of a few animals (fig. 2). Hyperemia and petechial hemorrhages were frequently seen in the fundic folds of the abomasum, while ragged or smooth-edged hemorrhagic ulcers were common in the pyloric portion of the abomasum, one such ulcer being perforated.

The ingesta of the small intestine, cecum, colon, and rectum in each calf was thin and of a watery, fetid, mucoid nature. The small intestines were only mildly affected, with an occasional area of catarrhal enteritis. The Peyer's patches showed no gross lesions.

The cecum and proximal loop of the ascending colon were variably and diffusely hyperemic, while the coiled colon, descending colon, and rectum commonly showed freckle-like, petechial hyperemia of the mucosa. The Peyer's patches related to the ileocecal valve and the junction (fig. 3) of the proximal loop of the ascending colon and the coiled colon were usually reddened, with dilatation and plugging of the gland openings with creamy mucopus. Cystic dilatation of the mucosal and submucosal glands in these lymphoid areas was observed.

The liver showed mild to severe damage in all cases. The lesions varied from small focal, yellow-white areas of necrosis or fatty degeneration to massive clay-yellow, fatty areas. Some livers were greatly enlarged with rounded edges and the distinct orange-yellow color of severe fatty degeneration. The gallbladder contained thick, viscid, flocculent bile but showed no evidence of mural damage.

The kidneys were affected in about 90 per cent of the field cases, with subcapsular petechia and swollen, pale, flabby parenchyma. In more advanced cases, fibrosis and cortical cystic formations became apparent.

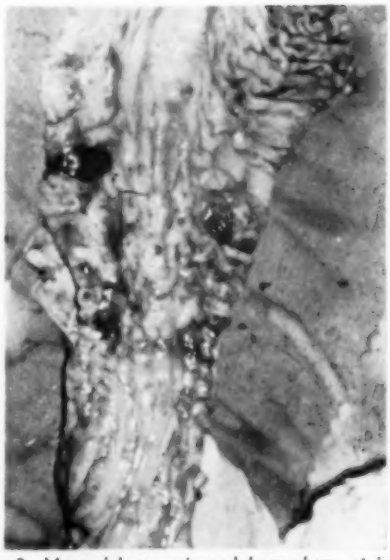

Fig. 3—Mucosal hyperemia and hemorrhage at junction of proximal loop of ascending colon and coiled colon in a calf.

No gross lesions were observed in the brain, pancreas, spleen, adrenals, pituitary glands, heart, vessels, or genitalia.

The experimental calves presented mucosal lesions qualitatively identical to those in field cases in type and in distribution, but they were not as pronounced, never progressing to the severe secondarily infected condition common in the field cases. Pneumonia was not observed in the experimental animals, and renal damage was minimal. The liver showed necrotic foci in all cases, progressing to scattered areas of fibrosis in 1 calf destroyed two months postinoculation.

Histopathological studies are in progress and will be reported later.

DISCUSSION

Except for some major differences, the symptoms of the disease encountered in these herds resemble those described for virus diarrhea-New York. The incubation period in the Virginia outbreak was shorter (2 to 8 days), the leukopenia transient (24 hours, chart 1), with markedly severe lameness. In virus diarrhea-New York, the incubation period was seven to nine days, leukopenia was severe, and persistent lameness was not present.

A comparison of the Virginia type to other mucosal diseases and rinderpest is shown (table 1). The findings most markedly setting this disease apart from other conditions in the "mucosal disease complex" is the extensive gross and microscopic damage to the liver, and the lameness as a result of ulcerations in the interdigital spaces. The necrophorous group of organisms undoubtedly played a role in the severity of the interdigital lesions and also in the severity of other ulcerative lesions in the buccal cavity, pharynx, esophagus, larynx, and abomasum.

The interesting feature of this disease was that only a single age group was affected, although other older and younger animals were in direct contact. It is the opinion of the authors that the stress of weaning played an important part in the increased susceptibility of the animals affected. History and circumstances would indicate that the stress phenomenon could be a factor, with a common cattle virus suddenly becoming virulent, aided by secondary bacterial invaders. This possibility should be investigated further.

SUMMARY

A mucosal-type disease which occurred in two widely separated herds has been described in weanling beef cattle. Differences between this disease and other mucosal diseases, viral diarrheas, or upper respiratory syndromes have been discussed. Gross liver damage as well as severe lameness with interdigital erosions have been constant and prominent findings. It was possible to transmit the agent by spleen and blood filtrates to susceptible calves and reproduce a mild form of the clinical disease in the absence of secondary bacterial invaders. The stress of weaning was thought to have been a factor in the increased susceptibility of the calves to this virus since other naturally exposed age groups did not become infected. Further studies are planned.

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Equine Botulism in Spain.—A detailed examination of 2 cases in horses of a controversial condition called "infectious paraplegia" indicated that it was botulism. One was destroyed and the toxin was recovered from the gastrointestinal contents and liver. Anti-botulinus type C serum neutralized the toxin for guinea pigs and was beneficial in treatment of the second horse.—*Vet. Bull., April, 1956.*

Cortisone Versus Aspirin for Arthritis

In a controlled study of rheumatoid arthritis in children under 16, 13 were treated with cortisone (25 to 200 mg. daily) and 12 with aspirin (2 to 6 gr. daily) for 12 weeks or longer. Both groups improved clinically and functionally to a similar extent. Children showed greater improvement than did adults in a similar test. —*Brit. M. J., May 12, 1956.*

A Mucosal Disease in Cattle in Pennsylvania

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THE FIRST reported occurrence of a disease of the type sometimes referred to as "mucosal disease" was described[1] in 1946. This particular syndrome, now known as "virus diarrhea," was later reported by several other workers.[2-6] Another mucosal-type disease was recognized in Iowa in 1953.[7] Other reports[8-10] indicate a mucosal disease complex which now has a widespread incidence throughout at least 20 states and Canada. Recently, "muzzle disease," another apparently separate entity in this group of confusing diseases was reported.[11] There are several clinical and pathological differences between the conditions called "virus diarrhea," "muzzle disease," and "mucosal disease." However, a review of the literature suggests considerable variation even between cases in each named syndrome. These differences and variations may be based on as yet unknown etiological factors or, perhaps, may simply indicate degrees of clinical severity of a single disease.

In general, those cases which, at present, are designated as mucosal disease are most common among cattle 6 to 18 months of age in both beef and dairy breeds. High fever and anorexia at the onset, with constant or intermittent diarrhea, profuse salivation, depression, erosions of the oral mucosa, and a foul-smelling, mucopurulent nasal discharge, are among the most frequent symptoms reported.

The authors have observed only one herd in Pennsylvania in which the clinical picture and pathological findings warrant a diagnosis of mucosal disease. Several alterations were observed which have not been reported previously in this condition.

CLINICAL HISTORY AND PATHOLOGY

Eleven locally purchased purebred Hereford cattle and 1 grade Holstein-Friesian were added to an original herd of 8 Herefords. All apparently remained normal for approximately six months, when 8 of the 12 new animals developed anorexia, slight fever, lacrimation, straining at urination and defecation, and began losing weight rapidly. Weedy silage, to which no chemicals had been added, had been fed to these animals during this period but approximately six weeks after the onset of symptoms this ration was replaced with mixed corn, oats, and molasses concentrate supplemented by clover hay. The sick animals had poor appetites but drank excessive amounts of water. The 8 animals of the original herd, maintained under identical conditions, were not affected at this time. The herd was examined by the authors about two months following the appearance of the initial symptoms and when only 7 of the purchased animals remained in the herd, 5 having been disposed of because of illness. Two 5-month-old calves had died within the previous month, following an illness of approximately three weeks, with symptoms similar to those now appearing in the older animals.

Clinical examination of the dam of 1 of these calves revealed labored respiration, occasional cough, lacrimation, thickening of the skin in the escutcheon, and two large elevated plaques on the ventral surface of the tongue. Diarrhea and extreme emaciation preceded this cow's death one week later. Necropsy revealed a few small ulcerated areas on the mucosa of the soft palate and esophagus, hemorrhages and caseous erosions of the cecum and ileocecal valve, moderate fibrosis of the liver, distention of the gallbladder and a few pin-point cysts on the mucosa, and mottling of the kidney surface with white streaks extending through the cortex. On histological examination, the following alterations were observed: in the tongue—papillary projections of the squamous epithelium into underlying connective tissue, with hypertrophy, vacuolization, and degeneration of the superficial mucosal layers (fig. 1); in the esophageal mucosa—focal hypertrophy and vacuolization of cells, with necrosis of the deeper epithelial layers and with many of the vacuolated cells containing acidophil-

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The authors acknowledge the assistance of Dr. E. E. Way, Huntingdon, Pa.

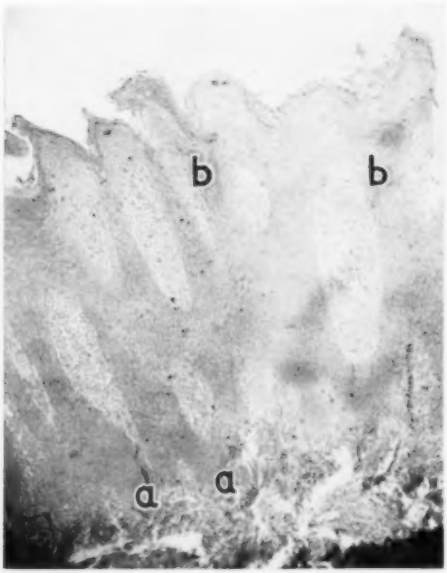

Fig. 1—Squamous cell hyperplasia of the tongue of a cow with mucosal disease, with papillary projections into submucosa (a) and degeneration and excessive keratinization of the surface layers (b). x 90.

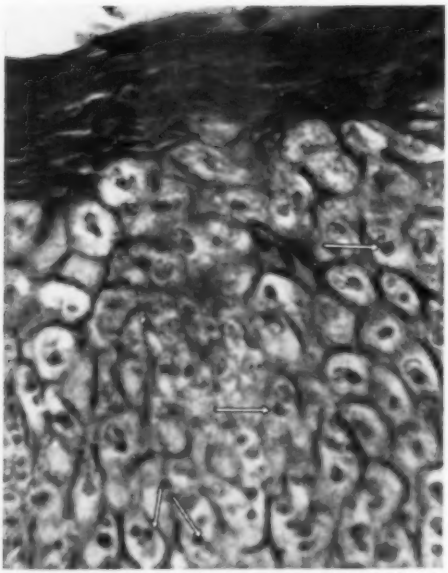

Fig. 2—Vacuolization of squamous epithelium of bovine esophagus, with numerous intracellular acidophilic inclusion bodies (arrows). x 225.

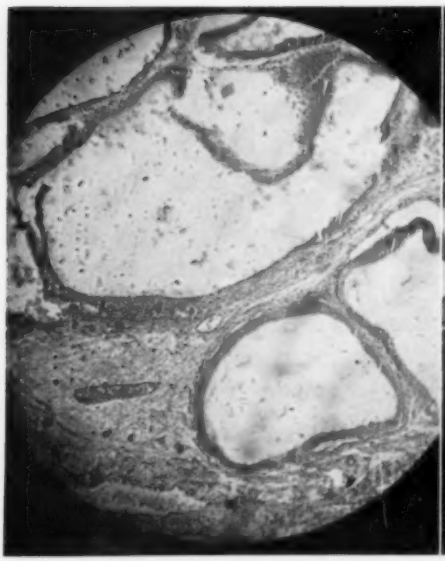

Fig. 3—Cystic dilatation of mucosal glands of the gallbladder of a cow with mucosal disease. x 64.

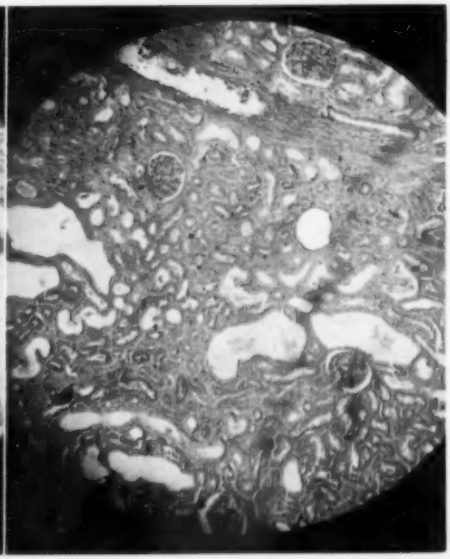

Fig. 4—Cystic dilatation of collecting tubules and interstitial tissue fibrosis of cow with mucosal disease. x 64.

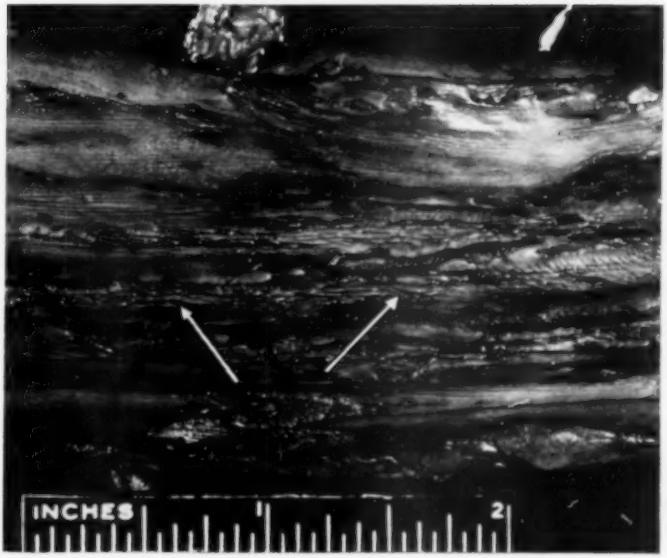

Fig. 5—Raised, plaque-like linear erosions on mucosa (arrows) of esophagus of a calf with mucosal disease.

ic-staining inclusion bodies (fig. 2); in the abomasum—edema of the mucosa and submucosa, with glandular hyperplasia and dilatation of the crypts of the gastric glands; in the duodenal mucosa—inflammatory cell infiltrations in the lamina propria and cystic dilatation of the glands of Lieberkühn and Brunner; in the cecal mucosa—erosions, with necrosis of glandular structures; in the gallbladder—cystic dilatation of mucosal glands, with a few small inflammatory cell accumulations in the lumina (fig. 3); and in the kidney—cystic dilatation of the collecting tubules, with focal interstitial tissue fibrosis and hemorrhage, also hydropic degeneration of the tubular epithelium (fig. 4).

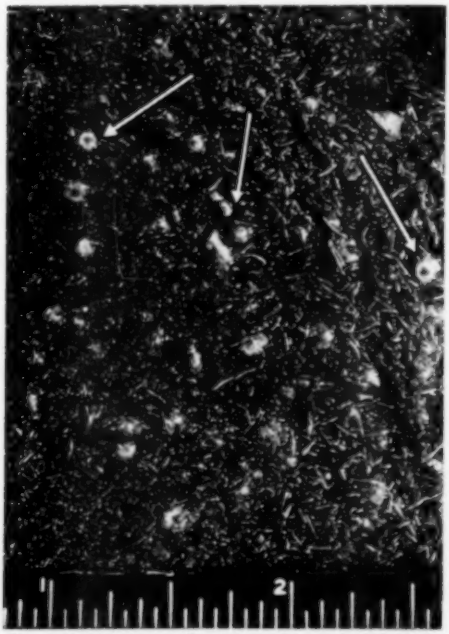

Fig. 6—Elevated, wartlike lesions (arrows) on mucosa of bovine rumen.

Following the death of this animal, the owner disposed of all but 1 of the sick animals. Within two weeks, 5 others from the original herd had developed diarrhea, lacrimation, salivation, dyspnea, and general depression; also, erosions on the ventral surface of the tongue, buccal mucosa, soft palate, and pharynx. One month later, 2 additional cows from the original herd were refusing the prepared concentrate feed although linseed oil meal and grass seemed particularly palatable. Both had recently delivered dead, full-term calves. Another cow was scouring slightly. Her 5-month-old calf was lacrimating, coughing, scouring, losing weight rapidly, and had erosive lesions in the mouth and nostrils.

One week later, all animals were disposed of and this calf was delivered to the labora-

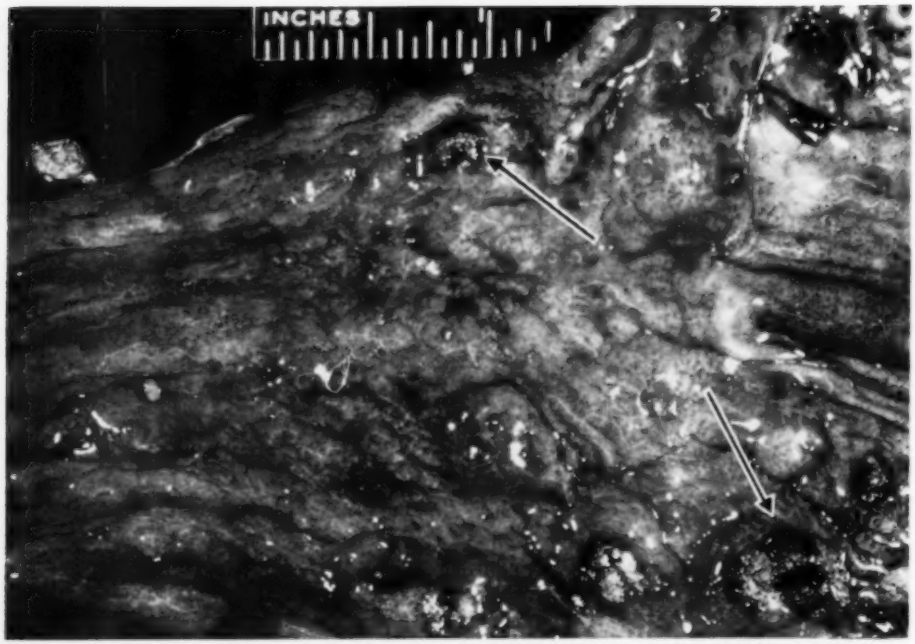

Fig. 7—Crateriform erosions (arrows) on mucosa of bovine ileocecal valve, with large foci of petechial hemorrhage.

Fig. 8—Numerous mucosal cysts on gallbladder of a calf.

tory and placed in direct contact with a 4-month-old experimental calf. Except for the occurrence of a 24-hour diarrhea five days following the initial exposure, the latter showed no ill effects. The sick calf died eight days after delivery to the laboratory and necropsy revealed: thick, tenacious gray nasal discharge; shallow erosions on the dorsal surface of the tongue; erosions of the incisor and molar gingiva; raised linear erosions of the esophageal mucosa (fig. 5); small wart-like, elevated lesions in the papillary area of the ventral rumen mucosa (fig. 6); shallow erosions of the pyloric mucosa, with crateriform caseous erosions near pyloric valve; halo-like con-

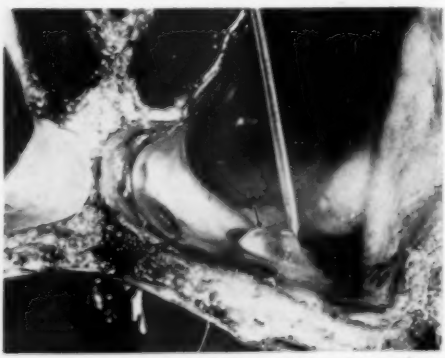

Fig. 9—Large mucosal cyst (see spike and arrow) on mucosa over palatine bone of a calf, with numerous smaller cysts throughout the sinus.

centric rings of petechial hemorrhages surrounding the erosions in the distal portion of the ilium, on the ileocecal valve, and in the proximal portion of the colon (fig. 7); distention of the gallbladder, with numerous mucosal cysts (fig. 8); several cysts up to 1 cm. in diameter in the posterior portion of the maxillary sinuses (fig. 9); and extensive bilateral degeneration of the ventral turbinates. Histopathological findings were comparable to those found at necropsy of the first animal.

TRANSMISSION STUDIES

In addition to exposing a calf by contact, a suspension of scrapings from the tongue lesions of the sick calf was inoculated into the tongue of a second 4-month-old experimental calf. A small plaque formation appeared at the site of inoculation five days later, but this lesion disappeared within 48 hours. No other clinical alterations were observed.

Tissue culture material prepared from the internal organs of the sick calf (0.1 cc.) was inoculated intradermally into the mucosa of the tongue of a third 4-month-old calf. Additional material from the same source was inoculated into embryonating eggs and 0.1 cc of the egg passage preparation was similarly inoculated into the tongue of a fourth 4-month-old calf.* Vesicular fluid obtained from the cysts observed in the maxillary sinuses of the sick calf was inoculated into the tongue of a fifth calf. The latter 3 calves were observed for five weeks but no local or systemic reactions appeared.

SUMMARY

Mucosal disease, diagnosed in a herd of 20 cattle, was believed to be the first incidence of this disease in Pennsylvania. The clinical and pathological observations were sufficiently similar to those previously reported[7] to warrant this diagnosis. The pathological changes were largely confined to the epithelium of the digestive tract, with erosions of the mucosa of the oral cavity and esophagus, and hyperplasia, cystic degeneration, circulatory disturbances, and erosion of the gastrointestinal lining. The most severe lesions occurred in the distal portion of the ileum, the cecum, and the proximal end of the colon. Cystic lesions were also found in the gallbladder and kidney. The numerous mucosal cysts in the maxillary sinus, the wartlike proliferations in the rumen wall of 1 of the animals, and the intracellular inclusion bodies in the esophageal epithelium in the other animal are lesions previously unreported in mucosal disease.

Transmission by direct contact and by inoculation of material from lesion tissues into susceptible animals was unsuccessful. Unfortunately, further field examinations and transmission studies could not be conducted since the relatively high morbidity prompted the owner to disperse the entire herd. For this reason also, no accurate estimate can be made of the mortality.

*The authors acknowledge the assistance of Drs. H. W. Dunne and R. F. Gentry, Veterinary Research Center, Pennsylvania State University, in preparing the experimental inoculums.

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Hyaluronidase in Strongylidae.—Extracts of *Strongylus equinus* and *Strongylus edentatus* reduce synovial viscosity almost to the same extent as does extract of bull's testicle. The bodies of these parasites probably contain a hyaluronidase-like substance to facilitate their migration through tissues.—*Vet. Bull., May, 1956.*

Deadly Nightshade Poisoning in Swine
Case Reports of Two Herds

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Sioux City and Paullina, Iowa

VETERINARY LITERATURE contains little information regarding deadly nightshade (*Atropa belladonna*) poisoning in swine. Veterinarians have probably observed such losses and have suspected plant poisoning but did not find the plant, which may have been entirely consumed. In many instances, necropsies of the affected pigs fail to show the plant or berries in the stomach or intestines, probably due to mastication or digestion, or both. Available information does not give the amounts of the plant, or of its parts, that must be eaten to produce death in swine.

Since the nightshade plants are poisonous only during certain stages of growth, they are not always suspected. Elderly farmers often doubt that the plant is poisonous since their parents or grandparents used the purple berries for making pies.

Losses may occur during the dry summer months when green feed is scarce. In other instances, the pigs seem to have acquired a desire to eat the plants, even when the pastures were green.

REVIEW OF LITERATURE

Pammel (1921)[1] stated that, in the United States, the deadly nightshade is one of the most poisonous plants for swine and other livestock. The seeds are poisonous to chickens.

Muenscher (1939)[2] described the nightshade family (bittersweet, belladonna, henbane, etc.) as having a wide distribution in the United States, with certain strains grown in gardens, under such names as "wonder berry" and "garden huckleberry," for their edible fruit—small purple berries containing many seeds. As the fruit ripens, the toxic agent, salanine (a nitrogenized glucoside) gradually decreases to nontoxic amounts. He states that the ripe berries are sometimes cooked for preserves or jams or are used in pies.

Tehon *et al.* (1946)[3] stated that animals are likely to eat nightshade when it is abundant and that the foliage and green berries contain several alkaloids, the most abundant of which is the glucoside, salanine. Poisoned animals show signs of stupefaction, and sometimes vomiting, constipation, muscular trembling, incoordination and convulsions. Dilation of the pupils of the eyes may be found on careful examination. The affected animals seek cool shaded areas. Death may be due to respiratory failure.

Quin (1934)[4] reported having seen belladonna poisoning in swine during the summer months. Dilation of the pupils, thumping, vomition, shock, and prostration were observed. Necropsy findings were negligible.

Hofferd (1937)[5] described belladonna poisoning in a herd of swine in which 20 of 83 died in about a month. He observed loss of appetite, palpitation of the heart, increased respiration, nervousness, incoordination, convulsions, coma, and death. The symptoms appeared suddenly, with death within 12 hours. There was no loss of weight and the temperatures remained normal. Necropsy revealed extensive infiltration of bloody serum around the kidneys. A gelatinous material was also seen in the abdominal fat and around the gallbladder.

Quin (1938)[6] stated that a large blood clot immediately adjacent to the kidney was almost pathognomonic of deadly nightshade poisoning in swine.

Casselberry (1939)[7] reported poisoning in a herd of swine due to black nightshade (Solanum nigrum) stating that swine usually do not eat it if other feed is available.

Huffman and Couch[8] listed the poisonous plants in the United States and described the common signs of poisoning in animals. They believed that overgrazing of pastures was probably the greatest single factor in causing losses from poisonous plants.

Breed[9] stated that, once swine taste the nightshade plant, an appetite is created and they may consume quite an amount. Some will die suddenly and necropsy may show no lesions. If the animals live for a few days and then die, they may show large amounts of straw-colored fluid around the kidneys and in the peritoneal cavity.

CASE REPORTS (1955)

Herd T consisted of 145 thrifty Hampshire shoats weighing between 90 and 125 lb. They had been vaccinated for hog cholera and for erysipelas when 9 weeks old and were being fed ground corn and oats in self-feeders, with protein supplement and minerals fed separately. They had been on a good alfalfa pasture, but due to hot, dry weather it was necessary to transfer the herd to a small bluegrass and alfalfa

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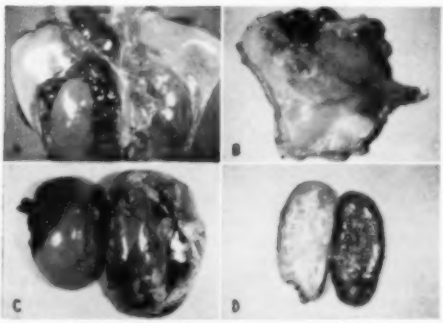

Fig. 1—Kidneys of pigs poisoned with deadly nightshade showing (A) an enormous amount of edema in and around the kidneys; (B) edema and hemorrhagic lymph glands; (C) blood clots and edema; and (D) hemorrhages which appear as "blebs" on the surface.

pasture which was also affected by the drought.

On June 10, 1955, about a week after transfer to this pasture, 2 pigs were found down on their sides, kicking with all feet, and highly nervous. The next morning both were dead, and necropsy showed a catarrhal inflammation of the mucosa of the stomach and small intestines. Attempts to culture pathogenic microorganisms from the vital organs failed. Three days later, 4 pigs were found dead and 1 (temp. 100 F.) was visibly sick. Necropsies on the dead pigs were negative. The sick pig was killed for necropsy. A few drops of its urine was placed in one eye of the family cat, and when examined 30 minutes later, the pupil was dilated while the other pupil was normal. Deadly nightshade plants found along the fence were mowed, raked, and burned. No more pigs sickened or died.

Herd P consisted of 170 pigs 8 weeks old. They had not been vaccinated against erysipelas or hog cholera. The pigs were confined to a 10-acre brome and alfalfa pasture and were fed corn, oats, and concentrate in self-feeders. In July, 1955, 6 good pigs had died suddenly in ten days. Postmortem examinations were negative. Erysipelas was suspected but tissues of 2 pigs submitted to the laboratory were negative when cultured.

A few days later, another pig was found in a state of near collapse, with a temperature of 100.8 F., and the pupils widely dilated. It was able to stand when placed on its feet but fell when attempting to walk. Necropsy revealed nothing that might account for the illness and the tissues were bacteriologically negative. The other pigs were not noticeably sick. No poisonous agents were found in the pasture but a luxuriant growth of deadly nightshade was found along the fence line in the neighbor's pasture, with branches protruding through the fence. There was evidence that the pigs had eaten some of them. The herd was removed and no more losses occurred.

DISCUSSION

Swine that have ingested deadly nightshade in large amounts are usually found dead and the amount ingested is never determined. The amount of poison in nightshade plants varies with soil, climate, the maturity of the plant, and other factors. The berries, especially, become less poisonous as they mature and are harmless when ripe. When growing plants are found, all animals should be removed, the entire pasture should be mowed, and the material should be burned. Little, in a medicinal way, can be done to change the condition in the affected animal. Usually, when symptoms appear it is too late for treatment to be of benefit.

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Effect of Antibiotics on Intestines.—Feeding aureomycin® (20 Gm./ton of food) to weaned pigs tended to decrease the weight of the small intestine, probably due to thinning of the gut. Chemical or histological changes were not detected in the gut, nor were there changes of weight in other organs.—*Vet. Bull., May, 1956.*

Tuberculosis in the Dog

WAYNE H. RISER, D.V.M., M.S., and ALFRED G. KARLSON, D.V.M., Ph.D.

Skokie, Illinois, and Rochester, Minnesota

NATURALLY ACQUIRED TUBERCULOSIS in the dog is relatively rare. Innes,[1] in a review of the literature, cited 177 cases and Feldman[2] found records of 182 cases. The majority of these were reported from Continental Europe. There are only a few case reports from the United States. Early in the century, Crocker[3] reported 15 cases among 1,548 canine necropsies. Feldman[4,5] has described 2 additional cases.

In the cases where the bacillary type of the infective agent was determined, it appears that the human type is predominant in the dog, but Feldman[2] warns against this assumption. His experimental evidence suggests that the dog is about equally susceptible to the human and the bovine types. He believes that the reason dogs have been found to have the human type is that dogs are frequently associated with human patients in a house-hold, whereas, due to bovine tuberculosis eradication programs, dogs are infrequently exposed to infected cattle. Experimentally, it has been demonstrated that dogs possess a profound resistance to avian tuberculosis.[2] The literature reveals only one case report of avian tuberculosis in the dog.[6]

Feldman[2] makes the following summary regarding tuberculosis in the dog:

> (1) The disease occurs most frequently in dogs from 1 to 5 years of age. (2) Symptoms, while not pathognomonic, may include loss of weight, cough and enlargement of the lymph nodes of the head and neck. (3) The lungs and tracheobronchial lymph nodes are affected in about 60 per cent of the cases. Other organs of predilection include the liver and the kidneys. The pleura, pericardium and peritoneum are involved less frequently than the organs previously mentioned. (4) The morbid anatomic changes may be those of caseous granulomatous nodules, exudative tuberculous pneumonitis or circumscribed neoplastic-like masses; the last occur especially in the liver and kidneys. Microscopically, giant cells of the Langhans type, frequently associated with tuberculosis in many other animals, do not occur. (5) Acid-fast bacillary forms are often numerous in preparations made from the caseous portions of the lesions.
>
> The public health aspect of tuberculosis in dogs, while only presumptive, is however, worthy of consideration. So far as is known, no instance of transmission of the infection from an infected dog to a human being has been reported; yet as mentioned previously the possibility of transmission from animal to man exists. In tuberculosis dogs having pulmonary lesions in which there is bronchiogenic spread or exudative tuberculous pneumonitis, countless numbers of tubercle bacilli must find egress with the respiration and excretions and mix with the saliva. Many of the organisms are undoubtedly swallowed and eliminated with the feces. In severe destructive tuberculosis of the kidneys, tuberculous bacilluria is probably fairly common. These facts should be sufficient reasons for including tuberculosis in the diagnostic consideration of sick dogs in which the disease is suspected. Obviously, a tuberculous dog should be destroyed.

CASE REPORT

A female Springer Spaniel, 8 years old, when seen in 1948, had been in declining health for six months, showing cachexia, anorexia, and diarrhea. There was no history of other illness. At the age of 5 years, she had given birth to a litter of pups, 1 of which had remained with her. This female offspring (then 3 years old) was fat and appeared to be in an excellent state of health. During the examination (by W.H.R.), a mass was found in the abdominal cavity of the patient in the region of the liver. Since a neoplasm was suspected, euthanasia was performed.

At necropsy, the organs of the thoracic cavity appeared normal but the parietal

Fig. 1—Kidney of the dog showing tubercles extending from surface of capsule.

Dr. Riser is a small animal practitioner in Skokie, Ill., and Dr. Karlson is with the Section of Bacteriology, Mayo Clinic, Rochester, Minn.

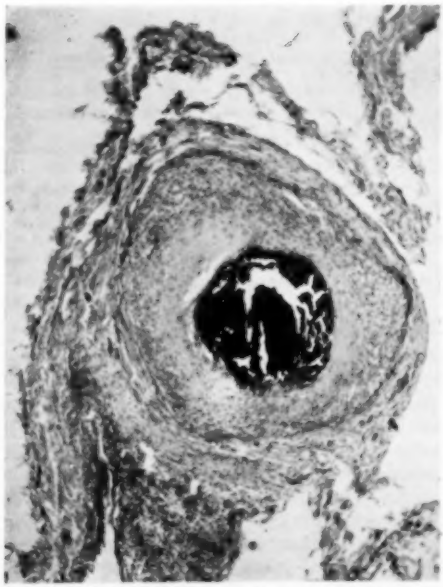

Fig. 2—Calcified lesion found in mesentery of the dog. x 200.

and visceral peritoneums were studded with small nodules 1 to 2 mm. in diameter. When the abdomen was opened, instead of finding tumors, the peritoneal surface was found to be studded with many white nodules. The liver was found to be enlarged to three times its normal size and it extended about 5 cm. posterior to the rib cage. Its surface was rough and irregular and incision of the organ revealed extensive fibrosis and calcification. The lesions resembled those of tuberculosis. Since this dog had lived for approximately eight years in close contact with her 3-year-old offspring in a household consisting of three children and their parents, it was obviously desirable to confirm or exclude the diagnosis of tuberculosis.

The abdominal organs were removed and a portion of them was fixed in 10 per cent formalin; other portions were frozen and shipped in ice to the laboratory (A.G.K.). When received, the fresh material was removed from the container with sterile instruments and placed in boiling water for two minutes to destroy surface contaminants. The small nodular lesions on the surface of the liver and kidney were firm and gritty when cut. The contents of one nodule were removed and pressed between two slides. When stained, acid-fast rods resembling tubercle bacilli were seen. Two grams of liver containing calcified lesions

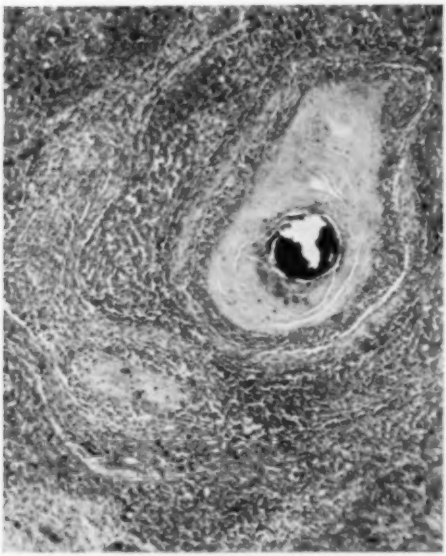

Fig. 3—Calcified lesion found in liver of the dog. x 100.

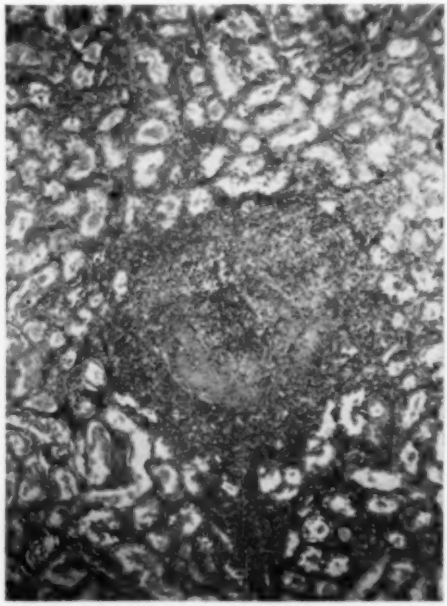

Fig. 4—Active lesion found in the cortex of the kidney of the dog. x 100.

and a like amount of kidney were ground separately in sterile mortars and a suspension of each tissue was injected into 2 guinea pigs and 2 rabbits. Four culture tubes containing glycerinated mediums and four tubes containing nonglycerinated mediums were inoculated with the suspension. In one month, growths typical of the human type of tubercle bacilli were seen on the glycerinated mediums and, some weeks later, similar growths appeared on the nonglycerinated mediums.

In seven weeks, all the animals were found to be sensitive to tuberculin and, at 98 days, all 4 animals were killed for necropsy. The guinea pigs had extensive tuberculous lesions of lungs, liver, and spleen. The rabbits had lesions only at the site of the injection (subcutaneous abscess) and 1 rabbit had a small lesion in a lung. This relatively low degree of virulence for rabbits in contrast to a high virulence for guinea pigs is characteristic of the human type of tubercle bacilli. Organisms typical of the human type of tubercle bacilli were recovered by culture from the spleens of the guinea pigs.

As soon as tubercle bacilli were identified, we felt it our duty to notify the family of our findings. The father revealed that their first child died of tuberculosis. In December, 1940, when the child was 5 months old, a woman took care of the child in the home for only one afternoon. Some weeks later, this woman was found to have tuberculosis from which she ultimately died. In April, 1941, the child was found to have tuberculosis and it died 17 months later from tuberculous meningitis. During the child's illness, the dog, then a puppy, was brought into the home. The dog and child were inseparable companions during the child's illness. The dog did not become ill until nearly eight years later.

When a diagnosis of tuberculosis was made in the dog, there were three children in the family. The mother, the 7-year-old daughter who was born one year after the first baby died, and the 3-year-old daughter were all positive to the tuberculin test but their lesions were reported to be arrested. The 3-year-old dog, when tested with 0.1 ml. of 1:100 old tuberculin, had a negative reaction. At this writing (1955), this dog is 10 years old, is still negative to the tuberculin test, and is in good health. The mother, father, and all three children remain well.

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Tuberculosis in the Dog

Dogs were found to be equally susceptible to human and bovine strains of tubercle bacilli when inoculated intravenously with virulent organisms. However, dogs were much more resistant than rabbits, guinea pigs, or calves but approximately as susceptible as mice. A strain isolated from a dog was no more pathogenic for other dogs than other strains. The course of the infection was not affected by variations in the ration. Infected dogs developed only a low and irregular degree of allergy to tuberculin.—*Am. Rev. Tuberc., May, 1956.*

Natural Mutant of Myxomatosis Virus.—A naturally occurring, attenuated mutant of the myxomatosis virus was isolated in France, 30 months after the disease appeared there in 1952. It kills experimentally infected rabbits only after about 19 days and only 4 of 5 show the nodular type of the disease.—*Vet. Bull., May, 1956.*

Effect of Coccidiosis on Fowl Blood

Chickens with cecal coccidiosis showed a decrease in body weight, in percentage of corpuscular volume, and in blood volume, but no change in the plasma volume during the hemorrhagic phase of the disease. The decrease in blood volume was due chiefly to the loss in corpuscular volume.—*Poult. Sci., March, 1956.*

Terramycin for Pullorum Disease in Chicks.—When chickens infected with *Salmonella pullorum* were given terramycin,® 10 gr. in 5 liters of drinking water for three days, improvement was noted in 24 hours and the chicks were normal on the third day.—*Vet. Bull., May, 1956.*

Wild Animals as Reservoirs of Disease

No phase of epizootiology is more intriguing than that which involves what might be called the hidden link or links in the chain of infection of some disease. When the hidden-link transmitters of disease fall in the category of wild animal life, it is doubly intriguing.

In this issue of the JOURNAL (p.—) is a report on the search, in an area where the disease seems to be enzootic, for the species of animals which may serve as reservoirs for the virus of vesicular stomatitis. The present evidence seems to indicate that vesicular stomatitis is not transmitted directly, and that both a vector, probably a mosquito, and a reservoir host for the virus are involved. Whether the latter comprises species which are active carriers, passive carriers (not apparently infected), or chronic carriers (clinically recovered) of the virus remains to be seen.

The possibility that there could be three hidden links in the chain of infection is suggested by the statement that, of the species found serologically positive to the virus, "omnivorous raccoon and swine which feed . . . on small animals could act in a secondary capacity to build up the 'pool' of virus . . ." which is then passed on to domestic species.

NEED SIMILAR STUDY FOR HOG CHOLERA

When a highly infectious disease such as vesicular stomatitis or equine encephalomyelitis is noncontagious, or relatively so, intermediate agents for transmitting the disease are suspected and are usually found. Therefore, the reason for a project such as that of Karstad *et al.* is obvious, and funds for same are easily justified. With a highly contagious disease, such as hog cholera, the reverse is true. Nevertheless, when the economic significance of cholera is considered, the urgent need for a similar but much more intensive investigation of a possible hidden link which might be a factor in perpetuating the disease must be apparent.

If scientific skills and appropriations of quantitative proportion were made available, the important question of possible passive carriers for the hog cholera virus should be soon resolved.

If wild animal reservoirs for cholera virus should be found, the problem of eradicating the disease would be complicated somewhat.

It would then consist of three, not two, major items, *i.e.*: (1) halting the use of all living viruses for vaccination; (2) cooking all garbage (pork scraps) fed to swine; and (3) exterminating, or somehow segregating swine from, the species found to be carriers of cholera virus.

If no apparent carrier species were found, the time for the serious planning of hog cholera eradication would seem to have arrived.

Ads, Fads, and Degermed Skin

It is refreshing to learn from *The American Journal of Surgery* (June, 1956) that basic scientific facts, while often distorted, can not be changed by high pressure advertising such as that used for medicated soaps. It has long been known in surgery that preoperative treatment of the skin rarely, if ever, achieves actual sterilization, and that mechanical cleansing with soap is the important single preparatory factor.

In a controlled study of preoperative degerming of skin in man, biopsy specimens of the full thickness of the skin were taken just before the final scrubbing, immediately after the scrubbing, and at completion of the operation. The organisms present were determined by macerating and culturing these skin specimens.

The degerming agents tested were hexachlorophene, either in bar soap (2%) or in liquid soap (1%), used for a three-minute scrub just prior to surgery; and acrizane chloride tincture (0.5%) or tincture of merthiolate® (0.1%) which were routinely applied just before surgery. In each instance, the area had been thoroughly scrubbed with soap and water the night prior to the operation.

The conclusions were that "there is little difference in the bacteria-suppressing activity of the three antiseptic agents tested. However, the authors also expressed a belief that "the effective factor in preparing the skin for surgical incision is the mechanical removal of gross dirt and germs by thorough cleansing with soap and water," whether the soap be chemically treated or plain.

Current Literature

ABSTRACTS

Biopsies of Bovine Livers to Determine Glycogen Content

The rapidity of response to intravenous injections of hydrocortisone, as demonstrated by many cows suffering from ketosis, would seem to indicate that their livers contain sufficient glycogen for recovery if the mechanism for its release could function. The authors believe that biopsies on livers of cows with ketosis will shed some light on this question.

The method of performing the biopsies with an improved type of instrument and the laboratory procedures for determining liver glycogen are described. Blood sugar (before and after biopsy) and liver glycogen determinations of normal cows were recorded but no data on the glycogen content of the livers of cows suffering from ketosis were available.—[*C. W. Raker and J. Allyn Rogers: Reports of Liver Glycogen Determinations by Biopsies on Dairy Cows. Am. J. Vet. Res., 17, (April, 1956): 205-206.*]

Preparation of Antigen for Diagnosis of Chronic Respiratory Disease in Chickens

Cultural methods for production of a pleuropneumonia-like organism (PPLO) antigen to detect chronic respiratory disease of chickens and infectious sinusitis of turkeys were studied.

The growth curve of PPLO of avian origin in broth and in chicken embryos was described, with evidence that the peak of growth is reached in 36 hours.

The effect on the growth of PPLO of horse serum-enriched mediums supplemented additionally with four different yeast preparations was determined. The results indicated that yeast autolysate was the most satisfactory yeast product when added to horse serum broth. This combination of supplements, when added to PPLO broth, significantly increased the yield of antigen as compared with that obtained in the basal broth supplemented with serum only.

A satisfactory method of agitation of PPLO broth cultures was outlined. The growth of the organisms was shown to be enhanced by stirring during incubation, especially when cultures were propagated in flasks which provided a small surface area of broth. When surface areas of broth were large, stirring resulted in no marked increase in yield.

A cream separator was found to be satisfactory for the concentration of large amounts of broth cultures.

A simple, efficient method of production of a PPLO antigen giving high yields was presented.—[*H. E. Adler and R. Yamamoto: Preparation of a New Pleuropneumonia-like Organism Antigen for the Diagnosis of Chronic Respiratory Disease by the Agglutination Test. Am. J. Vet. Res., 17, (April, 1956): 290-293.*]

Selling the Veterinary Profession

Written by a senior veterinary student, this article deplores the "marked tendency to shun publicity connected with the profession" and urges that veterinarians generally avail themselves of opportunities for promoting the veterinary profession and public esteem of its services. Suggested means include talks to farm groups, men's clubs, and similar gatherings; work with 4-H, F.F.A., and other young people's organizations; participation in local civic and governmental affairs, and so on.

The author shows a commendable grasp of the veterinary profession's place in the socioeconomic scheme and the disadvantages which any profession has in combating the unethical inroads upon its field and the need for suitable countermeasures. Lacking, perhaps, is an awareness of the extent to which veterinarians and veterinary associations are already engaged in doing most of the things he suggests.—[*William R. Klemm: Let's Sell the Veterinary Profession. Auburn Vet. (Fall, 1955): 19-23.*]

FOREIGN ABSTRACTS

A New Treatment for Demodectic Mange

Treatment for demodectic mange has often been unsatisfactory. Numerous treatments, such as sulfur, chaulmoogra oil, and Peruvian balsam, may apparently eliminate the lesions but the infection returns either in the same location or on other parts of the body.

Canepa and Da Grana in Argentina have shown that Demodex may be found in the lymph nodes, liver, spleen, blood, and feces of affected animals. It is, therefore, evident that successful local treatment may be followed by reinfection from the systemic reservoir.

Treatment of affected dogs with sterile sea water (0.5 cc./kg.), using a course of 25 to 30 injections during a period of three months, has produced lasting recoveries.—[*V. H. Bertullo and T. Pilz: A New Treatment for Demodectic Mange in the Dog. Rec. méd. vét. d'Alfort, 132, (1956): 112-123.*]—J.P.S.

BOOKS AND REPORTS

Reproduction and Infertility

The centennial symposium on reproduction and infertility, held at Michigan State University, June 27-29, 1955, has now been published as a paper-bound book. It includes 16 papers on infectious diseases; the chemistry, histology, and physiology of the reproductive organs; and discussions on ovulation and transplantation of ova. —[*Reproduction and Infertility. A Centennial Symposium of 16 papers. 112 pages, 8½ by 11 inches. Paper bound. College of Veterinary Medicine, East Lansing, Mich. 1956. Price $3.00.*]—W.A.A.

AMONG THE STATES AND PROVINCES

Alabama

Central Alabama Association.—The June 1, 1956, meeting of the Central Alabama Veterinary Medical Association was held in the Maxwell Officers' Club with Dr. Neil G. MacEachern, president, presiding.

This was the annual "ladies night" meeting, and a cocktail hour, followed by a buffet dinner and dancing, was held. A short film, "The United States Air Force, Veterinary Services," was shown to acquaint the women with the duties of an Air Force veterinarian.

s/JOE T. WILLIAMS.

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Jefferson County Association.—The Jefferson County Veterinary Medical Association held a dinner in honor of the outgoing and incoming officers at the Homewood Elks Lodge on June 14, 1956. Both members and wives attended.

The following officers for 1956-1957 were installed by the outgoing president, Ross Cryar: Jack C. Baker, Homewood, president; W. R. Laster, Jr., Birmingham, vice-president; S. A. Price, Birmingham, secretary; and W. A. Standifer, Leeds, treasurer. W. B. Castleberry, Birmingham, and Howard Hayes, Bessemer, were installed as executive board members.

s/W. R. LASTER, JR., *vice-president.*

Arizona

Dr. McLeod Appointed to Livestock Sanitary Board.—An article appearing in the June 16, 1956, *Phoenix Republic and Gazette* reported that Dr. Kenneth L. McLeod, Phoenix, has been appointed chief veterinary meat inspector for the state livestock sanitary board. Dr. McLeod, formerly city veterinarian for Phoenix, took over his new duties July 14, 1956.

s/R. DEMOPLOS.

California

East Bay Association.—The May 29, 1956, meeting of the East Bay Veterinary Medical Association was held at the Robin Hood Inn, Oakland.

The program included a talk by Dr. Wendell C. Peart, chairman of the C.S.V.M.A. Committee on Supply Problems, on the availability of syringes, antibiotics, estrogens, and biological products to the laity; and a discussion of rabies vaccine by Drs. G. L. Humphrey, Richmond, H. C. Burns, Oakland, and Wendell C. Peart.

s/L. S. GOLDSTON, *Secretary.*

Georgia

State Association.—The fiftieth annual meeting of the Georgia Veterinary Medical Association was held at the Hotel Oglethorpe, Savannah, June 10-12, 1956, with 125 veterinarians, wives, and guests in attendance.

The program included the following speakers and their subjects: E. J. Frick, Manhattan, Kan. (procedures and economics in veterinary practice); Don Conwell (M.D.), Tulane University, New Orleans, La. (immunization of man with living avianized rabies vaccine); P. F. Bahnsen, Americus (first official tuberculosis test); A. H. Craige, Indianapolis, Ind. (hormones in veterinary practice and common problems in small animal practice); C. Don Van Houweling, ARS, Washington, D.C. (progress in animal disease prevention); A. M. Mills, Athens (veterinarian's responsibility to clients); Dank Morris, Gainesville (disease and problems of poultry). Dr. C. C. Rife read a paper (background for progress) written by Brig. Gen. W. O. Kester, Washington, D.C., president of the AVMA, who could not be present.

The 1956 graduates of the University of Georgia School of Veterinary Medicine, Athens, were elected to membership. The following officers were elected for 1956-1957: C. C. von Gremp, Decatur, president; L. A. Mosher, Roswell, president-elect; and C. C. Rife, Atlanta, secretary-treasurer.

Dr. J. E. Severin, Atlanta, was selected as the veterinarian of the year and the highlight of the meeting was Dr.. Frick's travelogue of Alaska, which was enjoyed by all present. The convention city for 1957 will be Athens, at the Veterinary College.

s/CHAS. C. RIFE, *Secretary.*

Illinois

Dean Graham Honored on Retirement.—Dr. Robert Graham, retiring dean of the University of Illinois College of Veterinary Medicine, Urbana, was honored at a testimonial dinner for him on May 24, 1956, when his portrait was

The portrait of Dean Graham (right) was unveiled by his 5-year-old grandson, Robert Kevin Graham, assisted by Dr. Roger P. Link, chairman of the portrait committee. Dr. David D. Henry (left), president of the University of Illinois, accepted the portrait for the University.

unveiled and presented to the University. Dr. Graham, who has been with the University since 1917 and who has served as dean of the College of Veterinary Medicine since 1945, will retire Sept. 1, 1956.

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Eastern Association.—The summer meeting of the Eastern Illinois Veterinary Medical Association was held at the Hotel Tilden-Hall, Champaign, on June 7, 1956. Dinner was served to 56 members and guests.

Drs. C. F. Ferrell, Saybrook; E. H. Flint, Fairbury; D. L. Jessen, McLean; and Dragutin Maksic, Champaign, were elected to membership.

Dr. John Dick, Fort Dodge, Iowa, presented an illustrated discussion on some diagnostic problems of swine diseases.

s/H. S. BRYAN, *Secretary.*

Iowa

Annual Conference.—The annual conference for veterinarians was held at Iowa State College, Ames, on July 17-18, 1956.

The technical program was divided into large and small animal sections, with closed-circuit television programs interspersed between technical papers. Special features were the banquet and dedication ceremonies in honor of the completion of the large diagnostic laboratory. Drs. J. B. Herrick and D. L. Baker were co-chairmen of the conference.

s/J. B. HERRICK, *Chairman.*

• • •

Cedar Valley Association.—The newly elected officers of the Cedar Valley Veterinary Association are: D. B. Radloff, Dike, president; A. J. Cotten, Grundy Center, vice-president; and H. V. Henderson, Reinbeck, secretary.

s/D. A. BUCHANAN, *Retiring secretary.*

Kansas

Veterinary Conference.—The twenty-eighth annual conference of Kansas veterinarians was held at the Kansas State College, Manhattan, June 1-2, 1956.

The conference opened with a social hour and registration. The Friday morning session included the following speakers and their subjects: J. A. McCain, president of Kansas State College, and Dr. E. E. Leasure, dean of the veterinary school (welcome addresses); L. Meyer Jones, Iowa State College, Ames (newer anthelmintic drugs); R. A. Stocking, Los Angeles, Calif. (surgical problems in small animals); and M. J. Twiehaus, Kansas State College (the mucosal disease complex).

Following the Friday conference session, a meeting of the Kansas Veterinary Medical Association was held, followed by a banquet during which a portrait of Dr. R. R. Dykstra, dean emeritus of the Kansas State College, School of Veterinary Medicine, was received for the College by Dr. James A. McCain, president of the K.S.V.M.A. The presentation was made by Dr. C. W. Bower, Topeka, on behalf of the alumni. Dr. Dykstra was a member of the staff of the School of Veterinary Medicine, Kansas State College, for 42 years, including 29 as dean.

Speakers and their subjects at the Saturday session included: W. P. Johnson, American Cyanamid Co. (tetracycline in large animal practice and antibiotics in ruminant feed); H. C. H. Kernkamp, University of Minnesota, Minneapolis (enteric complex of sheep); Dr. Morris Erdheim, Dawes Laboratories, Chicago (practical nutrition); and R. A. Stocking (surgical problems in small animals). The program concluded with a question-and-answer session conducted by Dr. Embert Coles of the Kansas State College staff.

Presentation of the portrait of Dr. R. R. Dykstra Left to right—Robert M. Graham, Kansas City, Mo., artist who painted the portrait; and Drs. R. R. Dykstra; C. W. Bower; and James A. McCain.

Michigan

Michigan State Association—The seventy-fourth annual meeting of the Michigan State Veterinary Medical Association was held at the Bancroft Hotel, Saginaw, on June 21-22, 1956.

The program listed the following speakers and their subjects: A. D. Boccia, Saginaw (social security and the veterinarian); R. W. Boone, Lansing (exotic diseases); A. R. Conquest, Grand Blanc (antibiotics); Charles Coy, Hillsdale (stockyard testing); G. Crenshaw, Midland (piperazine); Lee Davisson, Lansing (exotic diseases); J. R. DeVries, Owosso (integration of large and small animal practice); G. T. Easley, Sulphur, Okla. (beef cattle); K. L. Etchison, Scottville (metal detector); F. G. Ferguson, Flint (steroids); E. R. Frank, Kansas State College, Manhattan (bovine surgery); W. E. Irwin, Tulsa, Okla. (cartilage grafts, problems in small animal practice); G. W. Mather, University of Minnesota, St. Paul (alimentation, geriatrics); J. H. Mark, University of Pennsylvania, Philadelphia (cases referred by veterinarians); B. Meredith, Kansas City, Mo. (canine hepatitis); G. R. Moore,

Michigan State University, East Lansing (correction of displaced abomasum); O. J. Robinson, Lake Odessa, Mich. (swine practice); S. G. Schmittle, Michigan State University, East Lansing (changing times); Anton Thompson, Henning, Minn. (dairy practice); and Don VanFarowe, Lansing, Mich. (X-ray hazards).

s/NEIL STIRLING, *General Chairman.*

New York

Cornell ROTC Veterinary Unit.—At the formal annual presidential review of the ROTC units at Cornell University, Ithaca, N. Y., held on May 17, 1956, three senior veterinary ROTC cadets received awards.

Cadets E. Neil Moore and Stephen Schwirck received awards, donated by the New York State Veterinary Medical Society, from Dr. Myron G. Fincher, past-president of the Society. Cadet Louis E. Newman, III, received the General Hospital Award.

s/EDWIN J. SUNDERVILLE.

Ohio

State Association.—The twenty-fifth annual conference for Ohio veterinarians was held at the College of Veterinary Medicine, Ohio State University, Columbus, on June 13-14, 1956.

The program listed the following guest speakers and their subjects: W. O. Brinker, Michigan State University, East Lansing (osteomyelitis); D. J. Dean, State of New York Health Department, Albany (rabies prophylaxis); J. C. Flint, Colorado A. & M. College, Fort Collins (infectious anemia panleukopenia and pneumonitis); J. R. Hay, state veterinarian, Columbus (report from the state office); Jean Holzworth, Boston, Mass. (blood dyscrasias in feline diseases); D. M. McBride, Sycamore (sheep disease); R. E. Nichols, University of Wisconsin, Madison (gastric tympany); D. L. Proctor, Lexington, Ky. (equine surgery); R. D. Shuman, Beltsville, Md. (swine erysipelas); and E. J. Wilson, Agricultural Research Service, Columbus (report from the federal office).

The following staff members also addressed the group: H. E. Amstutz, E. J. Catcott, C. R. Cole, C. D. Diesem, J. L. Gabel, J. H. Helwig, L. E. Johnson, D. O. Jones, F. R. Koutz, W. R. Krill, G. A. Marsh, S. W. Nielsen, T. E. Powers, R. E. Rebrassier, R. W. Redding, C. F. Reed, R. L. Rudy, J. H. Simpson, C. R. Smith, and V. L. Tharp.

s/W. R. KRILL, *Dean.*

• • •

Dr. and Mrs. Grossman in India.— Dr. James D. Grossman (OSU '14), professor emeritus of veterinary anatomy at Ohio State University, has accepted a two-year appointment to the Rajasthan College of Veterinary Science and Agriculture at Bikaner, Rajasthan, India.

Dr. and Mrs. Grossman left for India June 13 to join other members of the Ohio State University who are engaged in the development of agricultural education, research and extension programs. This project is supervised by the International Cooperation Administration, Washington, D. C.

Ontario

Dean Hagan Addresses Convocation.—Dean W. A. Hagan, of the New York School of Veterinary Medicine, Ithaca, gave the address

Left to right—Dr. Samuel Beatty, chancellor of the University of Toronto; Dr. T. Lloyd Jones, principal; Dr. W. A. Hagan; and Dr. Sidney E. Smith, president of the University of Toronto.

at the 1956 convocation of the Ontario Veterinary College in Guelph on May 18. Fifty-eight candidates were presented for the D.V.M. degree.

s/T. LLOYD JONES, *Principal.*

South Dakota

West River Association Organized.—The organizational meeting of the West River Veterinary Association was held recently at the Officers Club at Ellsworth Air Force Base. Men from throughout South Dakota participated, with Drs. R. L. Rea, state veterinarian, and W. F. Waddell, R. L. Pyles, and F. W. Carlson, federal veterinarians, assisting with the organization.

Dr. J. H. Wenig, Philip, was elected president; W. W. Ivy, Martin, vice-president; and J. V. Norris, Rapid City, secretary-treasurer. It was decided to meet every three months with Rapid City as the permanent meeting place.

The program included a guided tour through

Colonel W. B. Snodgrass (left), command veterinarian of the Strategic Air Command, Omaha, Neb., and officers of the West River Veterinary Association: J. H. Wenig, president; W. W. Ivy, vice-president; and J. V. Norris, secretary-treasurer.

the air base, made possible through the cooperation of the base personnel and the Strategic Air Command. Following the tour, a dinner and short business meeting were held. Colonel William B. Snodgrass, command veterinarian for the Strategic Air Command at Omaha, Neb., was guest speaker.

Lieutenant Wayne G. Fluke, U.S.A.F., V.C., Ellsworth Base veterinarian, made all arrangements and was a capable host for this highly successful meeting.

s/J. V. NORRIS, *Secretary.*

COMMENCEMENTS

University of California.—At the 1956 commencement exercises of the School of Veterinary Medicine, University of California, the following 51 candidates were presented for the D.V.M. degree:

Robert D. Angus
Gerald E. Asher
Lawrence G. Atkinson
John H. Bowles
Russell R. Burton
Robert B. Bushnell
Jackie L. Callison
Leland E. Carmichael

(*Continued on page 128*)

Graduating Class, 1956, School of Veterinary Medicine, University of California

Top row (left to right)—Franz Abt,* Robert D. Angus, Gerald E. Asher, Lawrence G. Atkinson, John H. Bowles, Russell R. Burton.

Second row—Robert B. Bushnell, Jackie L. Callison, Leland E. Carmichael, John R. Chandler, George E. Clinton, Robert J. Connolly.

Third row—Douglas R. Cordray, Leslie R. Douglas, Henry G. Evers, Norman Fohrman, Samuel C. Fulton, Werner P. Heuschele, Harold E. Hill, Robert W. Humburg.

Fourth row—Andrew W. Irwin, Burton Janis, Chauncey J. E. Johnson, Dale C. Johnson, Jiro J. Kaneko, Dean D. E. Jasper, Hyram Kitchen, LeRoy H. Krum, Keith B. Lansing, Louis N. Locke, Raymond F. Lucas.

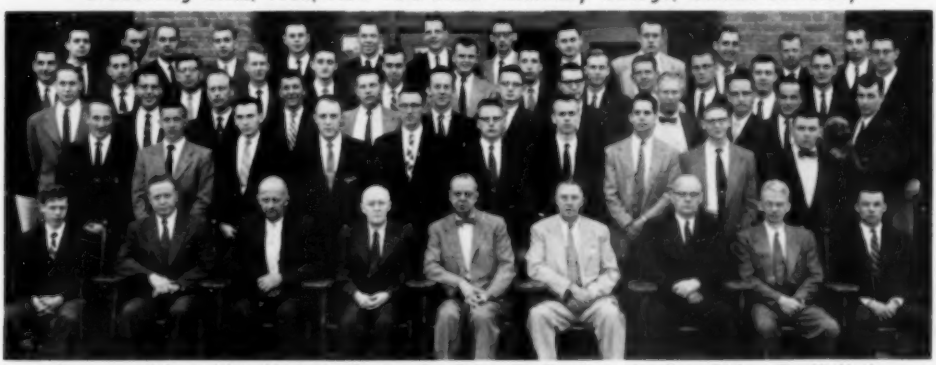
Fifth row—William R. Manclark, Larry Z. McFarland, Charles S. Martineau, Robert K. Morrison, Curtis D. Port, Delbert G. Reck, Pinchas Rippin, Paul N. Riste, Charles T. Robinson, James L. Russell, Gerald A. Sanford, Daniel F. Smith.

Sixth row—Patton L. Smith, John E. Spoon, Burton S. Sterneau, Edward E. Stuart, Harry S. Thompson, Jr., Antonino Uglialoro,* Lowell C. Walker, Joseph W. Wayne, Raymond A. Weitkamp, Richard E. Willis, James W. Withycombe, Jacques Zagha.*

*These men had received their veterinary degrees and were taking graduate work.

Graduating Class, 1956, School of Veterinary Medicine, Colorado A. & M. College

Graduating Class, 1956, New York State Veterinary College, Cornell University



Front row (left to right)—Martin J. Newman, Dr. Robert W. Dougherty, Dr. Peter Olafson, Dr. H. Hugh Dukes, Dean William A. Hagan, Dr. Ellis P. Leonard, Dr. Myron G. Fincher, Dr. A. Gordon Danks, A. Martin Simensen, Jr.

Second row—George E. Hahn, Robert V. Williams, Michael H. Gilman, Gordon E. Layton, Louis E. Newman, Rodney S. Graves, John D. Shumway, Alfred C. Steinhoff, Jr., Donald C. Fox, Herbert Tanzer.

Third row—Charles F. Reid, Harold M. Zweighaft, Charles M. Frumerie, Richard F. Frey, Charles A. Kircher, Teunis W. Van Wyk, Thomas T. Sanford, John M. Haines, Albert J. Halestrap, Willy E. Melberg, Robert M. York, Charles E. Durland.

Fourth row—Emil E. Perona, John D. Howe, William J. Grace, E. Neil Moore, Peter A. Huyler, Robert A. Squire, William A. Sumner, Jr., Stephen Schwirck, Rudolf Dueland, Jr., Lewis E. Watson, Robert O. Wente, William C. Wagner, Larry L. Larrow, Herbert J. Rosenoff.

Fifth row—Roland P. Hewes, Edward H. Fallon, Robert B. Barrett, Robert J. Perper, Graham B. Jeffrey, Norman Pick, Stilliman B. Clark, III, Vernon P. Vrooman, Robert S. Halperin, Mendell P. Bartlett, Roger E. Gillett, Bradford B. Brown, Charles A. Mebus.

(*Continued from page 126*)

John R. Chandler
George E. Clinton
Robert J. Connolly
Douglas R. Cordray
Leslie R. Douglas
Henry G. Evers
Norman Fohrman
Samuel C. Fulton
Werner P. Heuschele
Harold E. Hill
Robert W. Humburg
Andrew W. Irwin, Jr.
Burton Janis
Chauncey J. E. Johnson
Dale C. Johnson
Jiro J. Kaneko
Hyram Kitchen
LeRoy H. Krum
Keith B. Lansing
Louis N. Locke
Raymond F. Lucas
William R. Manclark
Charles S. Martineau
Larry Z. McFarland
Robert K. Morrison
Curtis D. Port
Delbert G. Reck
Pinchas Rippin
Paul N. Riste
Charles T. Robinson
James L. Russell
Gerald A. Sanford
Daniel F. Smith
Patton L. Smith
John E. Spoon
Burton S. Sternau
Edward E. Stuart
Harry S. Thompson, Jr.
Lowell C. Walker
Joseph W. Wayne
Raymond A. Weitkamp
Richard A. Willis
James W. Withycombe

Colorado A. & M. College.—At the 1956 commencement exercises of the School of Veterinary Medicine, Colorado A. & M. College, the following 60 candidates were presented for the D.V.M. degree:

Anton F. Anderson
Melvyn Anzick
Wayne H. Babbitt
William Baldwin
Leslie Ball
Jack Bartley
James C. Bastian
James H. Bell, Jr.
Robert E. Blake
Charles E. Brandner
Ronald B. Caffey
Jay W. Call
Tom R. Carroll
Stanley Conkey
David M. Davis
Albert W. Dickinson, III
Frankee P. Eliot
Theodore S. Eliot
Bennie G. Erwin
Robert L. Felker
John D. Fuhr
Robert C. Graves
Ernest Hansen
John F. Hawley
Charles W. Higham
James P. Jensen
Charles W. Keiss
Vern K. Kendall
William D. Ketcham
Walter E. Long
John Makris
Donald N. McCandless
Howard K. McNew
Leroy N. Miller
Robert M. Miller
Charles H. Mullenax

Graduating Class, 1956, School of Veterinary Medicine, Iowa State College

Top row (left to right)—Paul J. Bohm, Virgil E. Bohnenkamp, Keith A. Bates, Joseph T. Blake, Robert W. Carithers, Dennis J. Carr.

Second row—Eric G. Chalgren, Darrell L. Cochran, Richard E. Cooper, John H. Crow, Kenneth G. Custis, Duane F. Diemer, Delmar D. Diercks, LaVern H. Doerr.

Third row—Joseph E. Donovan, Earle M. Douglas, Alfred B. Evenson, Robert L. Everson, Thomas E. Florine, Ronald L. Goldsmith, Robert E. Gray, Leland Heidorn, Gordon R. Held, Ronald E. Hodoval.

Fourth row—Paul D. Hohman, Edward A. Jones, Rex H. Jones, Alan N. Knudsen, Robert H. Koschmeder, John E. Lessin, Donald G. Lyon, Jim C. McCaulley, William F. McCulloch, William V. McElroy, John D. McEnaney, William J. Means, Harold P. Miller, Truman K. Mostrom, John B. Mulder.

Fifth row—Richard L. Nelson, Phillip T. Pearson, Robert L. Perry, Nathan A. Phipps, John Pirri, Jr., William B. Redman, Carl E. Reschley, Dale E. Scambler, Thomas G. Schalk, Dayton L. Schmidt, Leonard F. Seda, Robert F. Sharp, James E. Shaw, Charles M. Sheldon, Russell P. Simonsen.

Sixth row—Lester G. Slayton, Jr., Leo N. Slife, Ralph W. Smith, Joseph A. Sowa, Craig D. Stark, Lloyd W. Stover, Charles W. Strother, Willard L. Vanderlinden, Martin Van Der Maaten, Wallace L. Vermeer, Donald E. Wagner, Donald D. Wert, Thomas F. Wetzell, Gene M. Zinn.

Phyllis B. Mullenax
Donald O. Nelson
Duane A. Newman
Benjamin E. Nichols
Richard G. Oakes
Donald B. Olsen
Theodore T. Oyler, Jr.
Ernest T. Parizo
RobRoy Patterson
Darlan J. Rezac
Lawrence E. Rice
Wayne E. Smith
Robert L. Stear
Robert L. Sweat
Glenn N. Taylor
Max E. Taylor
Stanley M. Teeter
Robert E. Thomassen
Lon W. Timpe
John E. Traber
William J. Trefz
Gilbert E. Ward
George L. White
John J. B. Wiley, Jr.
Louis E. Newman
Martin J. Newman
Emil E. Perona
Robert J. Perper
Norman Pick
Charles F. Reid
Herbert J. Rosenoff
Thomas T. Sanford
Stephen Schwirck
John D. Shumway
Alfred M. Simensen, Jr.
Robert A. Squire
Alfred C. Steinhoff, Jr.
William A. Sumner, Jr.
Teunis W. Van Wyk
Vernon P. Vrooman
Herbert Tanzer
William C. Wagner
Lewis E. Watson
Robert O. Wente
Robert V. Williams
Robert M. York
Harold M. Zweighaft

• • •

Cornell University.—At the 1956 commencement exercises of the New York State Veterinary College, Cornell University, the following 51 candidates were presented for the D.V.M. degree:

Robert B. Barrett
Mendell P. Bartlett
Bradford B. Brown
Stillman B. Clark, III
Rudolf Dueland, Jr.
Charles E. Durland
Edward H. Fallon
Donald C. Fox
Richard F. Frey
Charles M. Frumerie
Roger E. Gillett
Michael H. Gilman
William J. Grace
Rodney S. Graves
George E. Hahn
John M. Haines
Albert J. Halestrap
Robert S. Halperin
Roland P. Hewes
John D. Howe
Peter A. Huyler
Graham B. Jeffrey
Charles A. Kircher
Larry L. Larrow
Gordon E. Layton
Charles A. Mebus
Willy E. Melberg
Earl N. Moore

• • •

Iowa State College.—At the 1956 commencement excercises of the School of Veterinary Medicine, Iowa State College, the following 68 candidates were presented for the D.V.M. degree:

Keith A. Bates
Joseph T. Blake
Paul J. Bohm
Virgil E. Bohnenkamp
Robert W. Carithers
Dennis J. Carr
Eric G. Chalgren
Darrell L. Cochran
Richard E. Cooper
John H. Crow
Kenneth G. Custis
Duane F. Diemer
Delmar D. Diercks
LaVern H. Doerr
Joseph E. Donovan
Earle M. Douglas
Alfred B. Evenson
Robert L. Everson
Thomas E. Florine
Ronald L. Goldsmith
Robert E. Gray
Leland Heidorn
Gordon R. Held
Ronald E. Hodoval
Paul D. Hohman
Edward A. Jones
Rex H. Jones
Alan N. Knudsen

Graduating Class, 1956, School of Veterinary Medicine, University of Minnesota

Robert H. Koschmeder
John E. Lessin
Donald G. Lyon
Jim C. McCaulley
William F. McCulloch
William V. McElroy
John D. McEnaney
William J. Means
Harold P. Miller
Truman K. Mostrom
John B. Mulder
Richard L. Nelson
Phillip T. Pearson
Robert L. Perry
Nathan A. Phipps
John Pirri, Jr.
William B. Redman
Carl E. Reschley
Dale E. Scambler
Thomas G. Schalk
Dayton L. Schmidt
Leonard F. Seda
Robert F. Sharp
James E. Shaw
Charles M. Sheldon
Russell P. Simonsen
Lester G. Slayton, Jr.
Leo N. Slife
Ralph W. Smith
Joseph A. Sowa
Craig D. Stark
Lloyd W. Stover
Charles W. Strother
Willard L. Vanderlinden
Martin Van Der Maaten
Wallace L. Vermeer
Donald E. Wagner
Donald D. Wert
Thomas F. Wetzell
Gene M. Zinn

• • •

University of Minnesota.—At the 1956 commencement exercise of the School of Veterinary Medicine, University of Minnesota, the following 40 candidates were presented for the D.V.M. degree:

Richard W. Baus
Francis G. Bilkovich
William R. Byron
Robert J. Caldwell
John C. Dahl
James DeYoung
Stanley L. Diesch
Robert C. Eelkema
William D. Funk
John B. Gratzek
Irving L. Graves
Daniel D. Hagen
Orville D. Hanson
Richard Herschler
Herbert Hohenhaus
Edward R. Holland
Duane E. Hughes
Carl R. Jessen
Kermit W. Johnson
Vernon A. Karli
Ruth H. Krueger
Charles A. Kucirek
George A. Lakes
Edward L. Larson
Robert A. Martens
Charles W. McPherson
Martin C. Nold
Richard J. Nolden
Peter J. Oberhauser
Harvey A. Olson
Rodney Revsbeck
James R. Shultis
Wayne H. Sletten
Robert A. Stahnke
Milton C. Stensland
Douglas C. Swacina
Raymond B. Swanson
Robert M. Wempe
Robert Westlake
John L. Williamson

FOREIGN NEWS

France

Claude Bourgelat Statue at Lyon Restored.—One of the principal events at the *Journées Vétérinaires* (Veterinary Days) celebrated at the National Veterinary School at Lyon on June 8-10, 1956, was the reinstallation of the statue of Claude Bourgelat (1712-1779), which had suffered considerable damage during World War II.

Bourgelat, who was educated for the law, gained renown as a horseman, was a prolific writer, and is remembered as the founder of the first public veterinary school at Lyon in 1761, also the second one at Paris (Alfort) in 1765. They are still in existence.

The AVMA joined with others in contributing to a fund for the restoration of Bourgelat's statue.

DEATHS

George E. Bamberger (CVC '09), 70, Reno, Nev., died May 6, 1956. Dr. Bamberger had served with the Bureau of Animal Industry, U. S. Department of Agriculture, before he started his practice in Reno. At the time of his death, Dr. Bamberger was the oldest veterinarian, in point of service, in Nevada. He was actively interested in the breeding of Thoroughbred and Quarter horses and was considered an expert in that field. Dr. Bamberger was for many years a member of the AVMA.

John H. Black (ONT '99), Toronto, Ont., died April 23, 1956. Dr. Black, one of Ontario's best-known veterinarians, was also a well-known horseman. He had served for many years as chief veterinarian for the Ontario Jockey Club, but had entered private practice in 1950. Dr. Black is survived by his widow, two sons, one daughter, and three grandchildren.

John W. Bunker (CVC '02), 80, Winterset, Iowa, died in June, 1956. Dr. Bunker had retired a number of years ago. He is survived by his widow, a daughter, and three grandchildren.

★**Ennis A. Davis** (API '22), 56, Columbus, Ga., died May 29, 1956. Dr. Davis had practiced in Columbus for more than 30 years. He was a member of the Georgia and Southern States Veterinary Medical Associations and of the AVMA. His widow and a daughter survive.

Harry D. Rosengrant (CVC '13), 69, Afton, Iowa, died May 9, 1956. Dr. Rosengrant, a general practitioner, had been in poor health for several years. He is survived by his widow, two sons, two daughters, and nine grandchildren.

★**Allen C. Wight** (OSU '12), 65, Columbus, Ohio, died May 17, 1956. Lieutenant Colonel Wight had served in the Army from 1917 until his retirement in 1950—with the 7th Field Artillery in France during World War I; at Fort Belvoir, Virginia; the Canal Zone; and, during World War II, as chief veterinarian of the 8th Service Command in Dallas, Texas. From 1930 to 1934, he was an instructor at Walter Reed Army Medical Center.

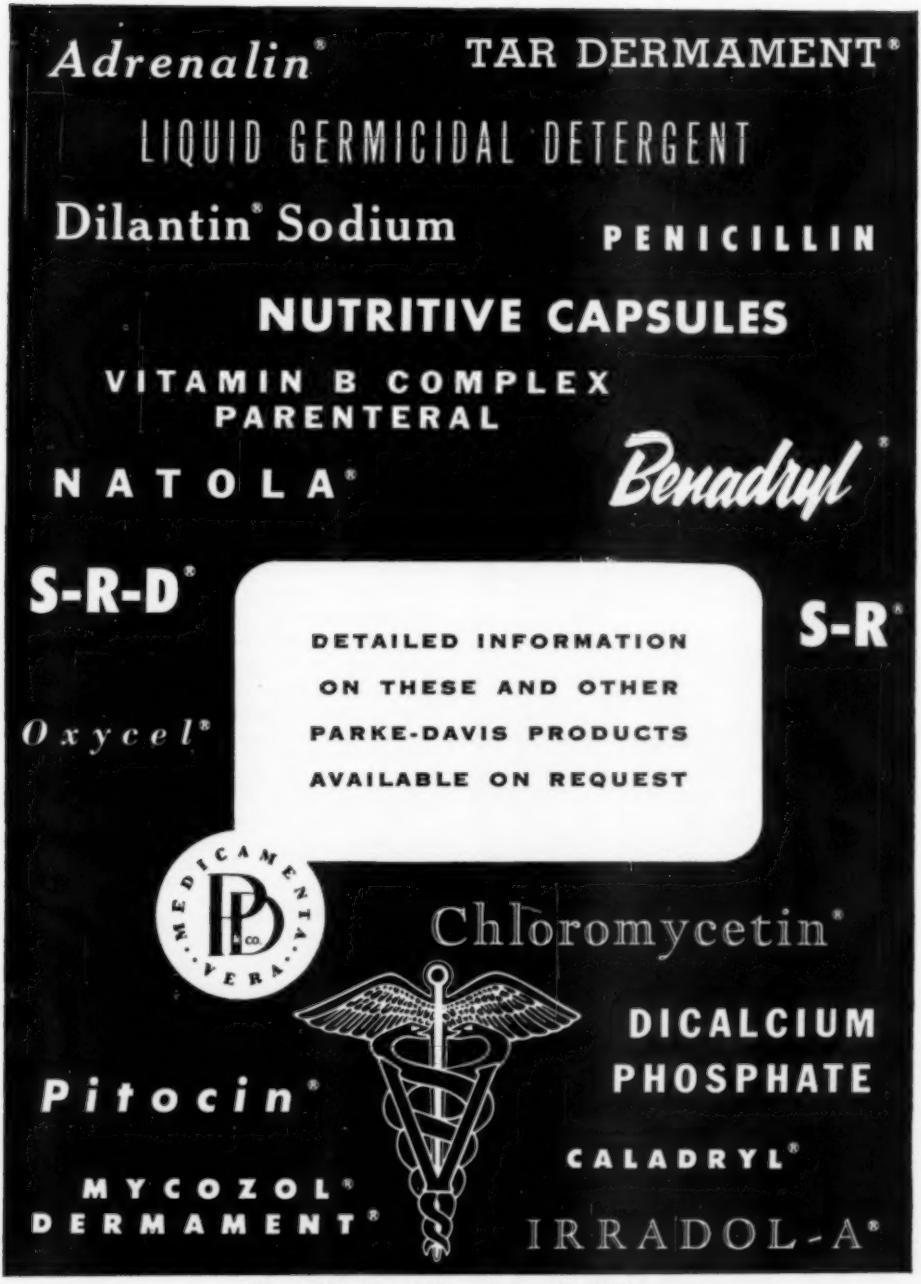
His survivors include his widow, two sons, and a daughter.

Earl P. Holbert (WES '06), 74, Lee's Summit, Mo., died April 18, 1956. Dr. Holbert had practiced in Lee's Summit for 35 years. His widow survives.

N. G. Houston, Jr. (API '35), 44, Sylvester, Ga., died March 12, 1956. Dr. Houston was a general practitioner.

Stanley K. Kasponis (KOV '43), 35, Green Bay, Wis., died March 6, 1956. Dr. Kasponis served with the Agricultural Research Service, U. S. Department of Agriculture, and was a member of the National Association of Federal Veterinarians. His widow survives.

★Indicates members of the AVMA.



Department of Veterinary Medicine

PARKE, DAVIS & COMPANY • DETROIT 32, MICHIGAN

ORGANIZATION SECTION

AVMA Annual Meeting in San Antonio October 15-18, 1956

Section Programs Complete for San Antonio Meeting

The scientific programs arranged for the Ninety-Third Annual Meeting of the AVMA in San Antonio on Oct. 15-18, 1956, will again combine closed-circuit television with presentations of scientific papers dealing with all aspects and phases of veterinary medicine.

The program of televised demonstrations will be presented through the courtesy of Allied Laboratories, Inc., and Radio Corporation of America, this being the sixth consecutive year these companies have collaborated in making television available for AVMA meetings.

The complete schedule for the six Sections is as follows:

Monday, October 15, 1:00 to 5:00 p.m.—Combined General Practice and Surgery and Obstetrics; combined Poultry and Research; and Public Health.

Tuesday, October 16, 8:45 a.m. to 12:00.—Combined Public Health and Research; Poultry; and Small Animals.

Tuesday Afternoon, October 16.—Open for group meetings.

Wednesday, October 17, 8:30 a.m. to 12:00.—Combined Public Health and Poultry; Research; and Small Animals.

Wednesday, October 17, 1:10 to 4:45 p.m.—Combined General Practice and Surgery and Obstetrics.

Thursday, October 18, 8:45 to 11:45 a.m.—Combined Sections.

The scientific meetings will be held in the Municipal Auditorium and the Gunter Hotel, San Antonio.

The September 1 JOURNAL will carry the complete program and the participants.

HOTEL RESERVATIONS

All of those planning to attend the San Antonio session are urged to make their reservations early. Hotel information and a reservation form appear in this issue (pp. 54-55) and will be printed in succeeding issues.

WOMEN'S AUXILIARY

President—Mrs. Earl N. Moore, 636 Beall Ave., Wooster, Ohio.

Secretary—Mrs. F. R. Booth, 3920 E. Jackson Blvd., Elkhart, Ind.

Message from the President.—It is an honor to extend greetings and best wishes to all Auxiliary members and to all veterinarians' wives in North America. On October 15-18, the thirty-ninth annual meeting of the Women's Auxiliary to the AVMA will convene at San Antonio, Texas.

The objectives of the Auxiliary are to assist in advancing the science and art of veterinary medicine, including its relationship to the public health; to provide loans and make awards to senior veterinary students; and to strengthen the bonds of friendship among the women connected with the veterinary profession.

In trying to fulfill our purpose to assist in the advancement of the profession, we have various national projects in which we hope the affiliates will participate, such as our student loan fund that we have maintained for 35 years. Seniors in 13 colleges are making use of this fund with the maximum loan being $400. Our loan fund is reaching the proportion of "big business" with $10,000 in this revolving fund. We are also anticipating an increase in the number of veterinary students in the future and more calls on the loan fund. It is never used for anything else.

This last year, the memorial fund was created to augment the loan fund. Gifts, or legacies in memory of deceased veterinarians or members of their families, may be given to this fund by friends and relatives. These gifts help worthy veterinary students and constitute a lasting memorial. To date, $305 has been contributed to this fund.

I am sure you are aware of the student auxiliary chapters which we sponsor. We now have 18, including a new one at Tuskegee Institute this year. We look to the student auxiliaries for future leadership.

This year, for the first time, all wives of graduating students received a six-months' complimentary membership as concrete evidence of our welcome to them into the Auxiliary. The letters of appreciation from both the wives and the deans have made it worthwhile, even if hard on the budget! At most schools, a special ceremony was conducted at which time the membership cards were given out by the chapter sponsor or dean.

One of our new Auxiliary projects that is expanding is the arranging of radio and television talks by veterinarians using AVMA-prepared scripts. In the past, these talks have been mostly on large animal subjects; now the AVMA office is preparing a trial series of scripts on small animal topics which will be used this fall. I hope you will adopt this as one of your state projects and appoint a state radio chairman. It is surprising how easy it

(Continued on p. 26)

New Instant Dog Food Mix

Absorbs liquid almost instantly, stays crumbly-moist, won't pack. Meaty aroma tempts finicky appetites... 16 health-giving benefits help make dogs champions.

QUICK MIXING meal has everything professional men want

Golden-brown, irregular-shaped kernels of new Quick Ken-L-Meal absorb liquid far faster than any other brand. Stays crumbly-moist, won't pack, won't stick to the bottom of the feeding dish or the roof of your dog's mouth. He can easily eat it all!

MEATY AROMA AND FLAVOR PLUS SUPER NOURISHMENT

High-meat-meal, super nourishing Quick Ken-L-Meal releases all the health-giving benefits of 16 rich, wholesome nutrients into your dog's system—every vitamin and mineral a dog is known to need, plus *even more protein nourishment than fresh-ground meat.*

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To introduce you to the revolutionary benefits of New Quick Ken-L-Meal . . . to let you see for yourself how dogs prefer it to other brands . . . we'll deliver a *free* trial supply so you can test it against your present brand. There is no obligation.

Clip this coupon . . . get your free trial supply

Mail this immediately to: KEN-L-PRODUCTS Division, The Quaker Oats Company, Merchandise Mart, Chicago, Ill.

I want to try new Quick Ken-L-Meal in my kennel. *I want to see how it performs against my present brand of dog food. I am under no obligation whatsoever.*

*Name*_____ *Breed of dogs*_____

*Address*_____ *No. of dogs*_____

*City*_____ *Zone*_____ *State*_____

This offer is limited. So mail this coupon today!

(WOMEN'S AUXILIARY—*continued from p. 24*)

is to get a program started with help from the national committee and the instruction kits supplied printed by the AVMA.

You are familiar with our own Auxiliary publication *The Auxiliary News*. For some women who never attend a national or state convention, it is their only contact with the Auxiliary, and we feel it serves a real need in member relations. The Auxiliary is grateful to our editor for the superb job she has done.

The honor roll of affiliated auxiliaries, which now numbers 68, was inaugurated last year. We hope each of you is aiming to make the five stars this year and a sixth star may be added to the honor roll for the prompt remitting of dues following meetings.

Last year, 25 auxiliaries contributed to the AVMA Research Fund to which the Women's Auxiliary has made contributions for the past five years.

With our new student members, we are now over the 5,000 mark in total membership, but that is far from our potential membership. If any of you are not now members, I invite and urge you to join. Dues are only $2 a year (January 1 to December 31), which amounts to less than 4 cents a week. Some women say "Oh, I never attend a national convention so why should I join?" None of the money from dues is used for entertainment at the convention; it all goes toward operating the AVMA Auxiliary. We all should consider that it isn't what we get out of the Auxiliary but what we contribute to our husbands' profession which has been most helpful to all of us.

Some of the most worthwhile things for our Auxiliary require time if they are to have lasting, beneficial results. Though time is required, it need not be wasted. Our student auxiliaries are receiving wonderful training in leadership and acquiring a genuine interest in our objectives.

I have had the privilege of meeting many wonderful, talented women of our Auxiliary and also many future student auxiliary members, all of whom give me faith in the future.

I have enjoyed working with you all and appreciate the encouragement you have given me. I look forward to seeing you all and your families in "fabulous Texas."

s/(Mrs. Earl N.) Leola Moore, *President, Women's Auxiliary to the AVMA.*

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Mrs. Moore Resigns as President.—The Executive Board of the Women's Auxiliary to the AVMA announces with regret the resignation of the president, Mrs. Earl N. Moore, effective July 1, 1956. Mrs. Alfred E. Coombs of Skowhegan, Maine, president-elect, automatically becomes president of the Women's Auxiliary to the AVMA for the balance of Mrs. Moore's term.

s/(Mrs. Frank R.) Leonore M. Booth, *Secretary.*

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West River Auxiliary.—The Woman's Auxiliary to the West River (S. Dak.) Veterinary Association was organized at the organizational meeting of the Association. The officers are:

Officers of the Women's Auxiliary of the West River Veterinary Association are (left to right)—Mrs. H. C. Severson, president; Mrs. J. V. Norris, secretary-treasurer; Mrs. F. N. Carlson, vice-president.

Mrs. H. O. Severson, Winner, president; Mrs. F. N. Carlson, Rapid City, vice-president; and Mrs. J. V. Norris, Rapid City, secretary-treasurer.

s/Mrs J. V. Norris *Secretary.*

• • •

Michigan Auxiliary.—The silver anniversary of the Women's Auxiliary to the Michigan State Veterinary Medical Association was held at the Bancroft Hotel in Saginaw, Mich., on June 21-22, 1956.

The Thursday program included a luncheon, business meeting, and style show, followed by a banquet in the evening. On Friday, the women toured the Dow Chemical Company, held a luncheon in the dining room of the Midland Methodist Church, and enjoyed a travelogue on Michigan.

STUDENT CHAPTER ACTIVITIES

Iowa Chapter.—The following officers were recently elected by the Iowa State College Student Chapter of the AVMA: Charles Rasmussen, president; Francis Copeland, president-elect; Paul Leonard, vice-president; Robert Billias, treasurer; William Speer, secretary; Stanley Harris, critic. Dr. James Lovell is the faculty advisor.

s/Fred J. Wood, *Secretary.*

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Kansas State Chapter.—On April 28, 1956, the Kansas State College Student Chapter of the AVMA entertained about 25 veterinary

(*Continued on p. 27*)

(STUDENT CHAPTER ACTIVITIES—*continued from p. 26*)

students from Oklahoma A. & M. College for the annual interschool mixer. The students were given a guided tour of the Kansas State clinic and basic science plants in the morning; the afternoon was highlighted by a picnic.

At the May 15 meeting, the following officers were elected for the fall term: Calvin Sevy, president; Paul Thomas, president-elect; Thomas Kirkminde, vice-president; John C. Breithaupt, secretary; Eldon Miksch, treasurer; Bill Patton, critic; and Robert Kind, marshall.

S/JAMES WALSDORF, *Publicity Chairman.*

APPLICATIONS

Applicants—Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative Bylaws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent association shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with Section 2, Article X, of the Administrative Bylaws.

BUTCHOFSKY, ROBERT L.
7184 Highway 80 East, El Paso, Texas.
D.V.M., Texas A. & M. College, 1946.

CALLAWAY, C. P.
446 Bailey, San Antonio, Texas.
D.V.M., Kansas City Veterinary College, 1915.

DRUMMOND, WILLIAM A.
1144 Poinsettia Ave., Manhattan Beach, Calif.
D.V.M., Michigan State University, 1942.

ELLWANGER, D. E.
Rt. 1, Lynden, Wash.
D.V.M., Washington State College, 1951.

GARNER, WILLIAM L.
Batesville Rt., Uvalde, Texas.
D.V.M., Oklahoma A. &. M. College, 1951.

HENDERSON, JAMES B.
3217 Olive Pl., Ft. Worth, Texas.
D.V.M., Texas A. & M. College, 1947.

HOLEKAMP, C. T., II,
Junction, Texas.
D.V.M., Texas A. & M., 1950.

HUFF, ROBERT C.
508 N. 7th Ave., Maywood, Ill.
D.V.M., University of Illinois, 1954.

LINAM, DUARD D.
506 East 54th St., Austin, Texas.
D.V.M., Texas A. & M. College, 1945.

MYATT, BARNEY A.
1035 S. Shaver, Pasadena, Texas.
D.V.M., Texas A. & M. College, 1945.

REID, PTOLEMY A.
316 22nd St., W., Saskatoon, Sask.
D.V.M., Tuskegee Institute, 1955.

SKINNER, NORMAN E.
34 Covington St., Perry, N. Y.
D.V.M., Cornell University, 1940.

Applicants — Not Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative Bylaws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., notice of all applications from applicants residing outside of the judisdictional limits of the constituent associations, and members of the Armed Forces, shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, school, and year of graduation, post office address, and the names of his endorsers.

First Listing

FORD, DUANE F.
5447 49th Ave., S.W., Seattle, Wash.
D.V.M., Michigan State University, 1945.
Vouchers: J. L. Owens and R. McNellis.

FULLER, ROBERT C.
Memphis General Depot, U. S. Army, Memphis, Tenn.
D.V.M., Alabama Polytechnic Institute, 1933.
Vouchers: D. Fitzpatrick and J. C. Shanklin.

JOHNSON, LEON D.
105th Medical Detachment, APO 122, New York, N. Y.
D.V.M., Alabama Polytechnic Institute, 1940.
Vouchers: E. S. Watkins and W. E. Jennings.

RADCLIFFE, H.
1820 E. 13 St., Brooklyn, N. Y.
D.V.M., Cornell University, 1945.
Vouchers: C. G. Isenberg and W. E. Jennings.

ROBERTSON, ALEXANDER
Department of Veterinary Hygiene and Preventive Medicine, Royal (Dick) School of Veterinary Studies, Summerhall, Edinburgh, Scotland.
M.R.C.V.S., Aberdeen University, Scotland, 1934.

Second Listing

ABEL, WILLIAM, 214 Fernwood, Davenport, Iowa.

CARLOS, ENRIQUE R., 839 Marquez de Comillas, Manila, Philippines.

HAYS, THOMAS A. S., Zone Veterinarian, 348 P. O. Bldg., Baltimore, Md.

HENRICH, EDWARD L., Alton, Iowa.

LAMPRU, PAUL D., 184 Artillery Post, Fort Sam Houston, Texas.

ROBERTSON, D. S., 115 Tuttle Rd., San Antonio, Texas.

Graduate Applicants

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative Bylaws to members in good standing of student chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

First Listing

Alabama Polytechnic Institute

All of the following applicants, with the exception of those otherwise noted, were vouched for by Drs. R. S. Sugg and J. T. Vaughan.

ALLEY, J. LEE, D.V.M.
Midway, Ala.

BALDWIN, CHARLES A., D.V.M.
106 Kelly Ave., Marianna, Fla.
Vouchers: R. S. Sugg and R. Ashwander.

BARNETT, KENNETH D., D.V.M.
Rt. 7, Cullman, Ala.

BENTLEY, WILLIAM R., D.V.M.
Rt. 1, Toney, Ala.
Vouchers: W. J. Gibbons and J. E. Greene.

BROWN, DANIEL G., D.V.M.
Box 461, Auburn, Ala.
Vouchers: J. H. Watt and W. J. Gibbons.

BUTLER, WILLIAM O., D.V.M.
Rt. 18, Knoxville, Tenn.

CALVIN, EDWARD, D.V.M.
461 Maybank Highway, Charleston, S. Car.
Vouchers: R. S. Sugg and A. A. Leibold.

CARLSON, NEAL R., D.V.M.
P.O. Box 37, Fruithurst, Ala.

CLAMPETT, EDWIN G., D.V.M.
797 N. 36th St., Paducah, Ky.
Vouchers: R. S. Sugg and A. A. Leibold.

CLAUGHTON, Hugh D., D.V.M.
Verbena, Ala.

CLEMENTS, WILLIAM J., D.V.M.
Rt. 3, Waverly, Ala.

(*Continued on p. 28*)

(APPLICATIONS—*continued from p. 27*)

COCHRAN, JAMES E., D.V.M.
138 Toomer St., Auburn, Ala.
Vouchers: G. K. Kiesel and J. T. Vaughan.
COOK, JOHN B., D.V.M.
Rt. 2, Camp Hill, Ala.
Vouchers: R. S. Sugg and A. A. Leibold.
COX, JAMES O., D.V.M.
Rt. 3, Philadelphia, Miss.
DAVIS, GEORGE C., D.V.M.
563 East Wesley Rd., N.E., Atlanta, Ga.
Vouchers: R. S. Sugg and R. Ashwander.
DEANS, WILLIAM W., D.V.M.
823 Daytona Ave., Holly Hill, Fla.
Vouchers: R. S. Sugg and R. Ashwander.
DUKES, JAMES E., D.V.M.
Atmore, Ala.
DUVALL, C. ALLEN, Jr., D.V.M.
Smithfield. Ky.
FENWICK, PAUL E., D.V.M.
R.R. 2, Lebanon, Ky.
FOUNTAIN, JOHN E., D.V.M.
648 Ferdon Blvd., Crestview, Fla.
Vouchers: R. S. Sugg and A. A. Leibold.
FUCHS, RICHARD J., D.V.M.
Box 266, Crestwood, Ky.
GASKIN, JAMES A., D.V.M.
1705 Furman Rd., Jacksonville, Fla.
GIESEMANN, ARNOLD V., D.V.M.
203 Reese Ave., Auburn, Ala.
Vouchers: R. S. Sugg and R. Ashwander.
GRAVLEE, JOSEPH F., Sr., D.V.M.
Wildwood Ter. and Florence Apts., Florence, Ala.
Vouchers: R. S. Sugg and R. Ashwander.
HARRIS, ALLEN L., D.V.M.
13212 Nebraska Ave., Tampa, Fla.
Vouchers: R. S. Sugg and R. Ashwander.
HENSON, JOE L., D.V.M.
Wagar, Ala.
Vouchers: R. S. Sugg and R. Ashwander.
HILL, HOWARD E., D.V.M.
Box 476, Belle Glade, Fla.
HYATT, CLINTON B., Jr., D.V.M.
40 N.E. 24th St., Fort Lauderdale, Fla.
Vouchers: R. S. Sugg and R. Ashwander.
JAMERSON, ROBERT C., D.V.M.
769 Vance Ave., Memphis, Tenn.
Vouchers: J. E. Greene and W. J. Gibbons.
JOHNSON, INGRAM P., Jr., D.V.M.
3560 Jackson Ave., Memphis, Tenn.
JOHNSON, NATHAN C., Jr., D.V.M.
Rt. 1, Obion, Tenn.
Vouchers: R. S. Sugg and A. A. Leibold.
KEENE, RICHARD Z., D.V.M.
1010 Chilhowee Dr., Knoxville, Tenn.
KING, ROBERT E., D.V.M.
P.O. Box 781, Columbus, Miss.
Vouchers: R. S. Sugg and A. A. Leibold.
KLINNER, KENT V., Jr., D.V.M.
P.O. Box 16, Eclectic, Ala.
KOLB, RUDOLPH C., D.V.M.
Rt. 3, Box 32, Vicksburg, Miss.
LANIER, GRADY E., D.V.M.
1433 S. W. 19th Ter., Miami, Fla.
Vouchers: W. S. Bailey and W. J. Gibbons.
LEVITT, EDDIE A., D.V.M.
400 N. E. 155 Ter., North Miami Beach, Fla.
LEWY, LUCIEN D., Jr., D.V.M.
138 Toomer St., Montgomery, Ala.
LOTT, GEORGE C., D.V.M.
Canton Animal Hospital, Canton, Miss.
Vouchers: R. S. Sugg and R. Ashwander.
MARDRE, ROBERT B., Jr., D.V.M.
400 N. 5th St., Opelika, Ala.
Vouchers: R. S. Sugg and A. A. Leibold.
MAY, A. WAYNE, D.V.M.
Jackson, Ala.
McADAMS, OSCAR R., D.V.M.
Rt. 1, Wilmer, Ala.
McCRORY, VASTINE S., D.V.M.
Rt. 3, Greenville, Ala.
McCULLOUGH, J. B., D.V.M.
79 Auburn Dr., Auburn, Ala.
McDANIEL, HARLESS A., D.V.M.
Rt. 6, Andalusia, Ala.
Vouchers: W. J. Gibbons and H. R. Seibold.
McGEE, HAROLD D., D.V.M.
Prentiss, Miss.
MEEKS, RONALD A., D.V.M.
Sugar Grove, Ky.
NISBETT, HARRY E., D.V.M.
437 East Magnolia, Auburn, Ala.
Vouchers: G. K. Kiesel and F. G. Schell.
PHILLIPS, JERE M., D.V.M.
Rt. 2, Box 11, Thomaston, Ala.
RIDOUT, SAMUEL, D.V.M.
Tarheel, Melbourn, Fla.
Vouchers: J. E. Greene and W. J. Gibbons.
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KEIL, JOHN H., Jr., D.V.M.
3428 Juneway, Baltimore, Md.
Vouchers: D. Sikes and T. J. Jones.
KELLY, HERBERT W., Jr., D.V.M.
Aylett, Va.
Vouchers: T. J. Jones and C. Westerfield.
KIRKLAND, WILLIE J., D.V.M.
R.F.D. 2, Nicholls, Ga.
Vouchers: E. W. Causey and T. J. Jones.
LIGHTSEY, HARRY M., Jr., D.V.M.
Belfast Plantation, Martins, S. Car.
Vouchers: D. Sikes and T. J. Jones.
LYNN, DAVID L., D.V.M.
110 Weber Ave., Orlando, Fla.
Vouchers: E. W. Causey and J. D. Morton.
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MITCHELL, GLYSSON L., D.V.M.
R.F.D., Damascus, Ga.
Vouchers: A. L. Kleckner and T. J. Jones.
PETERSON, R. DWIGHT, D.V.M.
Tunnel Hill, Ga.
Vouchers: M. L. Fleming and T. J. Jones.
POWELL, THOMAS W., D.V.M.
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Vouchers: J. D. Morton and T. J. Jones.
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Vouchers: S. S. Kreuz and C. Westerfield.
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ROEDER, JOHN A., D.V.M.
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Vouchers: T. J. Jones and P. L. Piercy.
ROGERS, JOLLY H., D.V.M.
Oak St., McRae, Ga.
Vouchers: M. L. Fleming and T. J. Jones.
ROSENBERGER, WILLIAM R., D.V.M.
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Vouchers: J. D. Morton and T. J. Jones.
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713 W. Market St., Johnson City, Tenn.
Vouchers: S. S. Kreuz and T. J. Jones.
SHARP, JAMES B., Jr., D.V.M.

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(APPLICATIONS—*continued from p. 31*)

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CARR, DENNIS, D.V.M.
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Vouchers: H. D. Simpson and E. C. Jensen.

McENANEY, JOHN D., D.V.M.
Waucoma, Iowa.
Vouchers: E. C. Jensen and R. L. Lundvall.

MEANS, WILLIAM J., D.V.M.
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Vouchers: M. S. Johnson and R. L. Lundvall.

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SHARP, ROBERT F., D.V.M.
Charter Oak, Iowa.
Vouchers: E. C. Jensen and M. A. Emmerson.
SHAW, JAMES E., D.V.M.
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Vouchers: L. C. Payne and F. K. Ramsey.
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1707 Summit St., Sioux City, Iowa.
Vouchers: R. Getty and R. L. Lundvall.
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Merrill, Iowa.
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Vouchers: G. R. Fowler and C. H. Covault.
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Vouchers: R. Getty and R. L. Lundvall.
STOVER, L. WILLIAM, D.V.M.
304½ N. Franklin, Ames, Iowa.
Vouchers: E. C. Jensen and D. L. Baker.
STROTHER, CHARLES W., D.V.M.
2015 Pammel Ct., Ames, Iowa.
Vouchers: E. A. Benbrook and F. K. Ramsey.
VANDERLINDEN, WILLIARD L., D.V.M.
192 Pammel Ct., Ames, Iowa.
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VERMEER, WALLACE L., D.V.M.
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Vouchers: F. K. Ramsey and E. A. Benbrook.
WERT, DONALD D., D.V.M.
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Vouchers: D. L. Baker and E. C. Jensen.
WETZELL, THOMAS F., D.V.M.
Alden, Minnesota.
Vouchers: E. A. Benbrook and G. R. Fowler.

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HAASE, RALPH W., D.V.M.
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Vouchers: G. R. Moore and G. H. Conner.

University of Minnesota

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Vouchers: V. Perman and R. Fenstermacher.
BYRON, WILLIAM R., D.V.M.
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1412 Grantham St., St. Paul, Minn.
Vouchers: J. N. Campbell and D. K. Sorensen.
DIESCH, STANLEY L., D.V.M.
1862 Eustis St., St. Paul, Minn.
Vouchers: J. P. Arnold and H. H. Hoyt.
EELKEMA, ROBERT C., D.V.M.
MB531 29th and Como S.E., Minneapolis, Minn.
Vouchers: D. K. Sorensen and E. A. Usenik.
GRATZER, JOHN B., D.V.M.
Dept. of Vet. Science, Lafayette, Ind.
Vouchers: L. J. Hanson and J. P. Arnold.
HAGEN, Daniel D., D.V.M.
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Vouchers: R. M. Leary and R. B. Hohn.
HANSON, ORVILLE D., D.V.M.
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Vouchers: H. H. Hoyt and D. K. Sorensen.
HERSCHLER, RICHARD C., D.V.M.
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Vouchers: L. J. Hanson and E. A. Usenik.
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KUCIREK, CHARLES A., D.V.M.
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Vouchers: R. L. Kitchell and A. F. Weber.
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(*Continued on p. 34*)

(APPLICATIONS—*continued from p. 33*)

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DAVIS, WILLIAM H., D.V.M.
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SPRUNG, CECIL, V.M.D., Middletown Rd., Lincroft, N. J.
TASHJIAN, ROBERT J., V.M.D., 363 Prospect St., West Boylston, Mass.
VACLAVIK, RICHARD A., V.M.D., R.D. 1, Smithfield, Pa.

Texas A. & M. College

BUSH, WALTER E., D.V.M., 1523 W. Johnson St., Denison, Texas.
CLINE, BERYL W., D.V.M., Box 4047, College Station, Texas.
COLLINS, JAMES R., D.V.M., Rt. 1, Box 37, Hitchcock, Texas.
COOPER, JOHN K., D.V.M., Rt. 1, Baton Rouge, La.
GROSS, JACK E., D.V.M., 5823 Velasco St., Dallas, Texas.
LARSON, WALLACE R., D.V.M., 1329 Mark St., Bossier City, La.
MIESSLER, TOM O., D.V.M., 2910 W. Lane, Houston, Texas.
MUNSTER, MARK G., D.V.M., 145 Thelma Dr., San Antonio, Texas.
PEARCE, JAMES R., D.V.M., 611½ Montclair, College Station, Texas.
SHEPLER, CLIFTON J., Jr., D.V.M., 159 Fauna St., Houston, Texas.
SKIDMORE, EUGENE T., D.V.M., 3121 Montana St., El Paso, Texas.

Washington State College*

ALLEN, LINDLEY R., D.V.M., C.S. Box 233, Pullman, Wash.
BECKSTEAD, DAVID W., D.V.M., Malad, Idaho.
BROWN, MARION P., D.V.M., 1209 Eighth St., Douglas, Ariz.
CLARK, LEWIS A., D.V.M., 301 Campus Ave., Pullman, Wash.
DALE, WINTHROP G., D.V.M., Star Rt. 2, Harrison, Idaho.
DORIUS, LOWELL C., D.V.M., Fisk and Cleveland, Pullman, Wash.
HAUG, ROBERT C., D.V.M., Rt. 3, Pullman, Wash.
HERON, BILLY R., D.V.M., Box 119A, Rt. 3, Moscow, Idaho.
HESS, WILLIAM A., D.V.M., 224 Vancouver Ave., Medford, Ore.
HOLLIDAY, DONALD M., D.V.M., 24A S. Fairway, Pullman, Wash.
HOOPES, KEITH H., D.V.M., P. O. Box 218, Belgrade, Mont.
HYDE, DARRELL C., D.V.M., 180 Longwood Ave., Boston, Mass.
KEARNS, DONALD C., D.V.M., 1706½ N. State St., Pullman, Wash.
MACAULEY, THOMAS D., D.V.M., Rt. 3, Box 137, Moscow, Idaho.
MAYCUMBER, HUGH C., D.V.M., General Delivery, Tonasket, Wash.
McCLEARY, JOHN D., D.V.M., Wordon, Mont.
McDONALD, JOHN S., D.V.M., R.F.D. 2, Rockford, Wash.
MILES, DON F., D.V.M., 710 W. Division St., Mt. Vernon, Wash.
MILLER, HOWARD G., D.V.M., Rt. 3, Twin Falls, Idaho.
PRENTICE, JOHN W., D.V.M., Rt. 1, Box 354, Marysville, Wash.
RELLING, DAVID P., D.V.M., No. 39, Hamlane, Lodi, Calif.
RIEK, HILMORE G., D.V.M., Box 834, C. S., Pullman, Wash.
ROBERTS, ALVA L., Jr., D.V.M., 11525 S. W. Canyon Rd., Beaverton, Ore.
SCHROEDER, CHARLES E., D.V.M., Rt. 1, Box 29, Dayton, Ore.
SCHROEDER, DOROTHY H., D.V.M., 1936 16th St., Chehalis, Wash.
SHERROD, WILLIAM W., D.V.M., Rt. 12, Box 14, Tacoma, Wash.
SHUPE, MERRILL G., D.V.M., B-26 S. Fairway, Pullman, Wash.
SMITH, WILLIAM A., D.V.M., Redmond Veterinary Hospital, Redmond, Wash.
SODERHOLM, LAURENCE G., II, D.V.M., 870 E. Baseline, Hillsboro, Ore.
STABENFELDT, GEORGE H., D.V.M., 404 Campus, Pullman, Wash.
STARNER, JAMES N., D.V.M., P.O. Box 26, Central Point, Ore.
STOVNER, FRED D., D.V.M., 24-D S. Fairway, Pullman, Wash.
STUCKI, BRUCE, D.V.M., Box 263, Paris, Idaho.
TAVENNER, WILLIAM M., D.V.M., South 3127 Tekoa St., Spokane, Wash.
TURNER, RAY D., D.V.M., McIntosh Veterinary Clinic, Lewiston, Idaho.
VAN PELT, R. W. Jr., D.V.M., 10815 Valmay, Seattle, Wash.
VINYARD, RONALD W., D.V.M., Apt. 7D, S. Fairway, Pullman, Wash.
WATSON, CECIL R., D.V.M., 38-C S. Fairway, Pullman, Wash.
WELLINGTON, WILLIAM E., D.V.M., 3332 78th Place, N.E., Bellevue, Wash.
WHITTAKER, ROBERT P., D.V.M., 1131 Ninth St., Clarkston, Wash.
WIMPENNY, CHARLES G., D.V.M., Box 2406 C.S., Pullman, Wash.
ZELLMER, RICHARD L., D.V.M., Box 505, Davenport, Wash.

New Plant for Kasco Dog Food

A large new plant devoted to the manufacture of Kasco dog food, producing up to nine carloads of canine rations daily, has been opened in St. Louis (National City, Ill.) by Kasco Mills.

So modern is the new plant that ingredients are untouched by human hands from the moment they are unloaded until the finished product is opened. The freight cars are unloaded undercover and from that time on as much care is taken of the food preparation as though it were intended for human consumption. It is unnecessary to store large inventories of the dog food; the finished product is shipped fresh within hours after it is processed in cars that have been cleaned and sanitized.

Mr. James Monroe, manager of the new plant, says that some of the ingredients in Kasco dog food cost thousands of dollars per ton, including one item costing $24,000 a ton.

Additions to Diamond Laboratories Staff

Mr. Karl Ratcliff, a graduate of Kansas University, has been appointed as director of pharmaceuticals at Diamond Laboratories. He was instructor for seven years in pharmaceutical manufacturing at Kansas City University, and is a registered pharmacist.

Mr. Norman Jungk, also a Kansas University graduate, has been appointed as director of biological research and control. He received his master's degree from K. U. in 1950 in microbiology and biochemistry.

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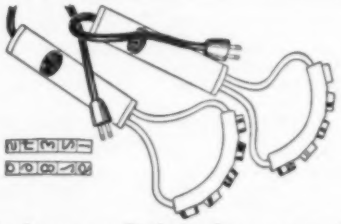

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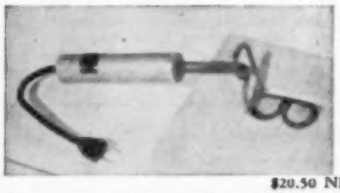

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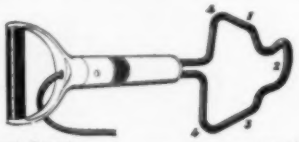

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COMING MEETINGS

Michigan State University, College of Veterinary Medicine. One-day conference on radiology for veterinary practitioners. Kellogg Center, M.S.U. campus, East Lansing, Aug. 1, 1956. C. F. Clark, dean.

Veterinary Public Health Session, to be held in conjunction with the annual health conference, Pennsylvania State University, State College, Pa., on Aug. 21, 1956, at 2:00 p.m. Rabies, trichinosis, brucellosis, and food poisoning will be discussed. Ernest J. Witte, P.O. Box 90, Harrisburg, Pa., chief, Division of Veterinary Public Health.

Louisiana Veterinary Medical Association. Annual Meeting. Jung Hotel, New Orleans, Aug. 30-31, 1956. William H. Lockard, Jr., P.O. Box 147, Zachary, secretary.

Colorado Veterinary Medical Association. Annual meeting. Estes Park, Sept. 7-9, 1956. G. H. Gilbert, 5500 Wadsworth Blvd. Arvada, Colo., secretary.

New Mexico Veterinary Medical Association. Annual meeting. Cal Boykin Hotel, Portales, Sept. 10-11, 1956. W. L. Black, Portales, N. M., chairman, program committee.

Pennsylvania State Veterinary Medical Association. Annual meeting. Bedford Springs Hotel, Bedford, Pa., Sept. 12-14, 1956. Raymond C. Snyder, N.W. Corner Walnut St., and Copley Rd., Upper Darby, Pa., secretary.

Dr. Beckenhauer Heads Norden Professional Services

Dr. William H. Beckenhauer, formerly a member of the Colorado A. & M. College staff, has joined Norden Laboratories as head of professional services and assistant to Dr. Carl J. Norden, Jr., director of biological production and research.

Dr. William H. Beckenhauer

A native of Faulkton, S. Dak., Dr. Beckenhauer received the B.S. and D.V.M. degrees in 1951 from Kansas State College. Following two years in large and small animal practice, he joined the clinical staff of Colorado A. &. M. College. He received an M.S. degree there last June. Dr. Beckenhauer is a member of the American Veterinary Medical Association and is a member of the U.S. Air Force Reserve (V.C.) with the rank of captain.

New York State Veterinary Medical Society, Annual meeting. Concord Hotel, Kiamesha Lake, N. Y., Sept. 19-21, 1956. L. W. Goodman, 2303 Northern Blvd., Manhasset, general chairman; Miss Joan S. Halat, 803 Varick St., Utica, secretary.

Washington State Veterinary Medical Association. Annual meeting. Davenport Hotel, Spokane, Sept. 21-22, 1956. P. J. Pfarr, 6306 N. Wall St., Spokane 53, general chairman.

Oklahoma conference for veterinarians. School of Veterinary Medicine, Oklahoma A. & M. College, Stillwater, Sept. 27-28, 1956. A. L. Malle, Department of Veterinary Pathology, chairman.

Missouri, University of. Annual short course for veterinarians. School of Veterinary Medicine, University of Missouri, Columbia, Oct. 1-2, 1956. Cecil Elder, chairman, short course committee.

Purdue University. Annual short course for veterinarians. Purdue University, Lafayette, Ind., Oct. 3-5, 1956, L. M. Hutchings, Purdue University, Department of Veterinary Science, Lafayette, chairman.

Eastern Iowa Veterinary Association, Inc. Annual meeting. Hotel Montrose, Cedar Rapids, Oct. 4-5, 1956. Forrest E. Brutsman, Traer, secretary.

South Dakota Veterinary Medical Association. Annual meeting. Hotel Cataract, Sioux Falls, Oct. 4-5, 1956. J. L. Noordsy, Marion, S. Dak., secretary.

University of Illinois. Annual Conference and extension short course for veterinarians. College of Veterinary Medicine, University of Illinois, Urbana, Oct. 12, 1956. L. E. Boley, Department of Veterinary Clinical Medicine, chairman.

American Veterinary Medical Association. Annual meeting. Municipal Auditorium, San Antonio, Texas, Oct. 15-18, 1956. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

Veterinary Symposium on Dogs. Kankakee Civic Auditorium, Kankakee, Ill., Oct. 24, 1956. Mr. Harry Miller, Gaines Dog Research Center, 250 Park Ave., New York 17, N. Y., director.

Mississippi Valley Veterinary Medical Association. Annual meeting. Hotel Pere Marquette, Peoria, Ill., Nov. 7-8, 1956. William L. Beer, 612 N. College Ave., Aledo, Ill., secretary.

U. S. Livestock Sanitary Association. Annual meeting. Morrison Hotel, Chicago, Ill., Nov. 28-30, 1956. R. A. Hendershott, 33 Oak Lane, Trenton 8, N. J., secretary.

Animal Care Panel. Annual meeting. Morrison Hotel, Chicago, Ill., Nov. 29-30, 1956. Robert J. Flynn, P.O. Box 299, Lemont, Ill., secretary.

Nebraska Veterinary Medical Association. Annual meeting. Hotel Lincoln, Lincoln, Dec. 3-5, 1956. W. T. Spencer, 1250 North 37th St., Lincoln, secretary.

New York State Veterinary College. Annual conference for veterinarians. New York State Veterinary College, Cornell University, Ithaca, Jan. 2-4, 1957, W. A. Hagan, dean.

Foreign Meetings

Tenth International Congress of Entomology. McGill University and University of Montreal, Montreal, Canada, Aug. 17-25, 1956. J. A. Downes, Division of Entomology, Science Service Bldg., Ottawa, Ont., Canada, secretary.

International Association of Hydatidology. Sixth Congress. Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, 1 MacKenzie King St., Athens, Greece, general secretary.

British Veterinary Association. Annual Congress. Royal Leamington Spa, Leamington, England, Sept. 16-22, 1956. Mr. F. Knight, 7, Mansfield St., Portland Pl., London, W.1, general secretary.

(*Continued on p. 42*)

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Regularly Scheduled Meetings

ALABAMA—Central Alabama Veterinary Association, the first Thursday of each month. B. M. Lauderdale, Montgomery, secretary.

Jefferson County Veterinary Medical Association, the second Thursday of each month. S. A. Price, 213 N. 15th St., Birmingham, secretary.

ARIZONA—Central Arizona Veterinary Medical Association, the second Tuesday of each month. Keith T. Maddy, Phoenix, Ariz., secretary.

Pima County Veterinary Medical Association, the third Wednesday of each month in Tucson. E. T. Anderson, 8420 Tanque Verde Rd., Tucson, Ariz., secretary.

Southern Arizona Veterinary Medical Association, the third Wednesday of each month at 7:30 p.m. E. T. Anderson, Rt. 2, Box 697, Tucson, Ariz., secretary.

CALIFORNIA—Bay Counties Veterinary Medical Association, the second Tuesday of each month. E. Paul, Redwood City, Calif., secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. Wilfred Pimentel, 3455 S. Elm Ave., Fresno, Calif., secretary.

East Bay Veterinary Medical Association, bimonthly, the fourth Wednesday. Leo Goldston, 3793 Broadway, Oakland 11, Calif., secretary.

Kern County Veterinary Medical Association, the first Thursday evening of each month. A. L. Irwin, 301 Taft Highway, Bakersfield, Calif., secretary.

Mid-Coast Veterinary Medical Association, the first Thursday of every even month. W. H. Rockey, P. O. Box 121, San Luis Obispo, Calif., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. Lewis J. Campbell, 90 Corral de Tierra, Salinas, Calif., secretary.

North San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month at the Hotel Covell, in Modesto, Calif. Lyle A. Baker, Turlock, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. Chester A. Maeda, 766 E. Highland Ave., San Bernardino, Calif., secretary.

Orange County Veterinary Medical Association, the third Thursday of each month. Donald E. Lind, 2643 N. Main St., Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. T. D. Harris, San Mateo, Calif., secretary.

Redwood Empire Veterinary Medical Association, the third Thursday of each month. Robert E. Clark, Napa, Calif., secretary.

Sacramento Valley Veterinary Medical Association, the second Wednesday of each month. W. E. Steinmetz, 4227 Freeport Blvd., Sacramento, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. H. R. Rossoll, 1795 Moore St., San Diego, Calif., secretary.

San Fernando Valley Veterinary Medical Association, the second Friday of each month at the Casa Escobar Restaurant in Studio City. John Chudacoff, 7912 Sepulveda Blvd., Van Nuys, secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. Howard C. Taylor, 2811 West Olive St., Burbank, Calif., secretary.

Tulare County Veterinarians, the second Thursday of each month. R. B. Barsaleau, 2333 E. Mineral King, Visalia, Calif., secretary.

COLORADO—Denver Area Veterinary Society, the fourth

(*Continued on p. 43*)

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(COMING MEETINGS—*continued from p. 42*)

Tuesday of every month. Richard C. Tolley, 5060 S. Broadway St., Englewood, Colo., secretary.

Northern Colorado Veterinary Medical Society, the first Monday of each month. M. A. Hammarlund, School of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo., secretary.

DELAWARE—New Castle County Veterinary Association, the first Tuesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. E. J. Hathaway, Clifton Park Manor, Apt. 73-5, Wilmington 2, Del., secretary.

FLORIDA—Jacksonville Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. George F. Yopp, 4644 Main St., Jacksonville, Fla., Secretary.

Palm Beach Veterinary Society, the last Thursday of each month in the county office building at 810 Datura St., West Palm Beach. Ross E. Evans, 5215 S. Dixie Highway, West Palm Beach, Fla., secretary.

Ridge Veterinary Medical Association, the fourth Thursday of each month in Bartow, Fla. Paul J. Myers, Winter Haven, Fla., secretary.

South Florida Veterinary Society, the third Tuesday of each month, at the Seven Seas Restaurant, Miami, Fla. E. D. Stoddard, 6432 S. W. 8th St., Miami, Fla., secretary.

Suwannee Valley Veterinary Association, the third Friday of each month, at the Thomas Hotel, Gainesville, Fla. R. C. Mann, Rt. 1, Box 37, Ocala, Fla., secretary.

GEORGIA—Atlanta Veterinary Society, the second Tuesday of every month at the Elks Home on Peachtree St., Atlanta, Ga. J. L. Christopher, Smyrna, Ga., secretary.

ILLINOIS—Chicago Veterinary Medical Association, the second Tuesday of each month. Mark E. Davenport, Jr., 215 S. Edgewood Ave., LaGrange, Ill., secretary.

Eastern Illinois Veterinary Medical Association, the first Thursday of March, June, September, and December. A one-day clinic is held in May. H. S. Bryan, College of Veterinary Medicine, University of Illinois, Urbana, secretary.

INDIANA—Central Indiana Veterinary Medical Association, the second Wednesday of each month. Peter Johnson, Jr., 4410 N. Keystone Ave., Indianapolis 5, secretary.

Michiana Veterinary Medical Association, the second Thursday of every month, except July and December, at the Hotel LaSalle, South Bend, Ind. J. M. Carter, 3421 S. Main St., Elkhart, Ind., secretary.

Tenth District Veterinary Medical Association the third Thursday of each month. W. E. Sharp, Union City, Ind., secretary.

IOWA—Cedar Valley Veterinary Association, the second Monday of each month, except January, July, August, and October, at Black's Tea Room, Waterloo, Iowa. H. V. Henderson, Reinbeck, Iowa, secretary.

Coon Valley Veterinary Association, the second Wednesday of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. D. I. Lee, Sac City, Iowa, secretary.

Fayette County Veterinary Association, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Northeast Iowa-Southern Minnesota Veterinary Association, the first Tuesday of February, May, August, and November at the Winneslick Hotel, Decorah, Iowa, 6:30 p.m. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

KENTUCKY—Central Kentucky Veterinary Medical Association, the first Wednesday of each month. L. S. Shirrell, Versailles Rd., Frankfort, secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month in Louisville

(*Continued on p. 44*)

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(COMING MEETINGS—*continued from p. 43*)

or within a radius of 50 miles. W. E. Bewley, P.O. Box "H," Crestwood, secretary.

MARYLAND—Baltimore City Veterinary Medical Association, the second Thursday of each month, September through May (except December), at 9:00 p.m. at the Park Plaza Hotel, Charles and Madison St., Baltimore, Md. Harry L. Schultz, Jr., 9011 Harford Rd., Baltimore, Md., secretary.

MICHIGAN—Mid-State Veterinary Medical Association, the fourth Thursday of each month with the exception of November and December. Robert E. Kader, 5034 Armstrong Rd., Lansing 17, Mich., secretary.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. S. Correll, Rt. 1, Midland, Mich., secretary.

Southeastern Veterinary Medical Association, the fourth Wednesday of every month, September through May. Gilbert Meyer, 14003 E. Seven Mile Rd., Detroit 5, Mich., secretary.

MISSOURI—Greater St. Louis Veterinary Medical Association, the first Friday of the month (except July and August) at the Sheraton Hotel, Spring Ave. and Lindell Blvd. Allen B. Shopmaker, 136 N. Meramec, Clayton 5, Mo., secretary.

Kansas City Small Animal Hospital Association, the first Monday of each month, at alternating hospitals. W. F. Noland, 7504 Metcalf, Overland Park, Kan., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month at Exchange Hall, ninth floor, Livestock Exchange Bldg., 1600 Genessee St., Kansas City, Mo. Busch Meredith, 800 Woodswether Rd., Kansas City 5, Mo., secretary.

NEW JERSEY—Central New Jersey Veterinary Medical Association, the second Thursday of November, January, March, and May at Old Hights Inn, Hightstown, N. J. David C. Tudor, Cranbury, N. J., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from October through April at the Academy of Medicine, 91 Lincoln Park South, Newark, N. J. Myron S. Arlein, 2172 Milburn Ave., Maplewood, N. J., secretary.

Northern New Jersey Veterinary Association, the fourth Tuesday of each month at the Casa Mana in Teaneck. James R. Tanzola, Upper Saddle River, secretary.

Southern New Jersey Veterinary Medical Association, the third Tuesday of each month at the Collingswood Veterinary Hospital, Collingswood. W. E. Snyder, E. Kings Highway and Munn Ave., Haddonfield, secretary.

NEW YORK—New York City, Inc., Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63rd St., New York City. C. E. DeCamp, 43 West 61st St., New York 23, N. Y., secretary.

Monroe County Veterinary Medical Association, the first Thursday of even-numbered months except August. Irwin Bircher, 50 University Ave., Rochester, N. Y., secretary.

NORTH CAROLINA—Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel in Greensboro. J. W. Peace, High Point, secretary.

Eastern North Carolina Veterinary Medical Association, the first Friday of each month. Wm. Allen Potts, 401 W. James St., Mount Olive, secretary.

Piedmont Veterinary Medical Association, the last Friday of each month at 7:00 p.m. in Mull's Motel in Hickory, N. Car. W. W. Dickson, Box 1071, Gastonia, N. Car., secretary.

OHIO—Cuyahoga County Veterinary Medical Association, the first Wednesday of each month, September through May (except January), at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Ed. R. Jacobs, 5522 Pearl Rd., Cleveland, Ohio, secretary.

(*Continued on p. 46*)

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Correspondence

June 19, 1956

Dear Dr. Aitken:

A short article entitled "Incidence of Leptospira in Horses—A Laboratory Report" appeared in the June 15, 1956, JOURNAL. The authors . . . reported an incidence of 46 per cent positive samples in a series of 183 clinically undocumented blood samples.

. . . I feel that an objection to this report should be made on the following grounds:

1) These examinations were performed by dark-field microscopy of blood, a method which is absolutely unreliable for the diagnosis of leptospirosis in any species of domestic animal. This objection is well documented in literature.

2) It is obvious from their report that these workers were culturing grossly contaminated blood samples. With properly handled, aseptically secured, equine blood samples I am convinced that they would have obtained sterile cultures.

3) It will be perfectly obvious to any worker experienced in diagnostic techniques for leptospirosis that these people are being misled by artefacts present in any blood sample or exudate. These artefacts are fibrin threads which on cursory examination appear to be leptospiras . . . . I have found such artefacts to persist through as many as eight transfers in liquid medium. This last observation may explain the "positive" culture results reported.

4) In my experience,* leptospiremia can be demonstrated in horses by animal inoculation or cultural techniques for only two or three days during an acute infection, and in no case have I been able to identify Leptospira in a blood sample even when the cultural results were positive.

I feel that the report given by Schlichting and Sanders is a misleading interpretation of a series of inadequate testing procedures . . . .

Sincerely,
John T. Bryans, *Virologist*,
Lexington, Ky.

*Studies on Equine Leptospirosis, Cornell Vet., Jan., 1955:16-50.

(COMING MEETINGS—*continued from p. 44*)

OKLAHOMA—Oklahoma County Veterinary Medical Association, the second Wednesday of every month. James M. Brown, 2818 W. Britton Rd., Oklahoma City, secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month in Directors' Parlor of the Brookside State Bank, Tulsa, Okla. Don L. Hohmann, 538 S. Madison St., Tulsa, Okla., secretary.

PENNSYLVANIA—Keystone Veterinary Medical Association, the fourth Wednesday of each month at the University of Pennsylvania School of Veterinary Medicine, 39th and Woodland Ave., Philadelphia 4, Pa. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., secretary.

SOUTH CAROLINA—Piedmont Veterinary Medical Association, the third Wednesday of each month at the Fairforest Hotel, Union, S. Car. Worth Lanier, York, S. Car., secretary.

TEXAS—Coastal Bend Veterinary Association, the second Wednesday of each month. J. Marvin Prewitt, 4141 Lexington Blvd., Corpus Christi, Texas, secretary.

VIRGINIA—Central Virginia Veterinarians' Association, the third Thursday of each month at the William Byrd Hotel in Richmond at 8:00 p.m. M. R. Levy, 312 W. Cary St., Richmond 20, Va., secretary.

Southwest Virginia Veterinary Medical Association, the first Thursday of each month. I. D. Wilson, Blacksburg, secretary.

WASHINGTON—Seattle Veterinary Medical Association, the third Tuesday of each month in the Trinity Episcopal Church, 8th and James St., Seattle, Wash. P. R. Des Rosiers, 5508 2nd Ave., N. W., Seattle 7, Wash., secretary.

South Puget Sound Veterinary Association, the second Thursday of each month except July and August. O. L. Bailey, P. O. Box 906, Olympia, Wash., secretary.

WEST VIRGINIA—Kyowva (Ky., Ohio, W. Va.) Veterinary Medical Association, the second Thursday of each month in the Hotel Prichard, Huntington, W. Va., at 8:30 p.m. Harry J. Fallon, 200 5th St., W., Huntington, W. Va., secretary.

WISCONSIN—Milwaukee Veterinary Medical Association, the third Tuesday of each month, at the Half-Way House, Blue Mound Rd. George F. Lynch, 201 West Devon St., Milwaukee 17, Wis., secretary.

Rats, known as jerboas, which walk erect are found in the North African desert. About 8 inches long, with long bushy tail, they move like kangaroos.—*Sci. News Letter, June 16, 1956.*

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Quick relief for Bone,
Bursal or Tendon Lameness
Single Bottle.....$2.00
3 and 1 free.....5.00
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BROKEN TEETH
—repaired in bottom clipper blades. Top and bottom blades sharpened to match. Save money—Guaranteed. Prices on Request
HIGHLY SPECIALIZED SHARPENING
Sales—Repairing on Oster and Stewart clippers.
Sharpened Blades Tested on Rabbit Fur
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for 18 months

"...almost every known treatment failed..."

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DRAMATIC IMPROVEMENT IN JUST 19 DAYS...

BEFORE SELEEN—Hound had suffered from demodectic mange almost from birth. In spite of therapy with almost every type of skin medicament, condition grew steadily worse. Photo taken four days before first SELEEN treatment.

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And *you* can get equally fast control of nonspecific dermatoses and ectoparastic skin conditions in dogs and cats the same way—by treating these pets

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In clinical studies, SELEEN Suspension brought complete control in 87%, definite improvement in another 11%, of all nonspecific dermatoses cases. Moreover, you'll find SELEEN

- *relieves itching and scratching,* usually with the first treatment.
- *cleanses skin and haircoat,* removes tissue debris.
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Easy to apply, safe to use, SELEEN takes only 10 or 15 minutes per treatment. Try it. Order from Abbott Laboratories, North Chicago, Illinois; your Abbott salesman, or your distributor.

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POLYOTIC INTRAMUSCULAR:
100 mg.-500 mg.-1 Gm.-5 Gm.
POLYOTIC INTRAVENOUS: 100 mg.-2.5 Gm.
POLYOTIC OBLETS®: 4's-6 x 4's
POLYOTIC CAPSULES: 50 mg., 25's-100's;
100 mg., 100's; 250 mg., 16's-100's
POLYOTIC TABLETS: 50 mg., 25's-100's;
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POLYOTIC SOLUBLE (Tinted) POWDER:
¼ lb.-½ lb.-1 lb.-5 lb.
AVIANIZED® RABIES VACCINE: (Canine):
1 dose-5 x 1 dose-10 doses-100 doses

AVAILABLE TO VETERINARIANS ONLY

AVIANIZED RABIES VACCINE: (Cattle): 10 doses
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Whole Culture Inactivated:
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1. Udder Infusion

POLYOTIC Tetracycline MASTITIS OINTMENT

Over 400 mg. tetracycline per infusion tube, in a nonirritating ointment base that permits persisting, active concentrations of this new, broad-spectrum antibiotic for over 48 hours with a single infusion, even though the udder is milked out every 12 hours.

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Use POLYOTIC INTRAVENOUS wherever immediate serum and tissue levels are required in the control of acute, subacute or chronic infections. Use POLYOTIC INTRAMUSCULAR to maintain blood levels for 24 hours.

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POLYOTIC Tetracycline SOLUBLE OBLETS®

Use for uterine insertion to control susceptible uterine infections, facilitate natural membrane expulsion.

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NICHOLSON

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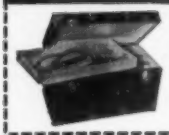

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Baked black enamel over steel with brass trim. 5 standard models; light weight, yet built to take knocks! See folder N-1 for sizes, prices.

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Before you buy cages, write for folder N-2 on our amazing new Plasti-Plated kennels. Rock-hard, glass-smooth, seamless surfaces. Inexpensive, easy to do-it-yourself!

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new! plastic sign letters for your hospital

Our new selection of beautiful weatherproof plastic signs will dress-up your office or clinic. All sizes, colors; easily installed. Write for folder N-5.

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Most modern, up-to-date way to fire horses, remove warty growths, ear polypi, tumors. Complete with 11 points/tips. Write for folder N-6.

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☐ folder N-4 syringe cases ☐ folder N-5 sign letters ☐ folder N-6 firing irons

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Personal Want Ads—$4.00 for the first 25 words and 10 cents for each additional word; 35 cents for use of box number.

Commercial Want Ads—$5.00 for the first 25 words, 25 cents for each additional word.

Remittance must accompany ad.

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For JOURNAL dated *1st of month* — 8th of month preceding date of issue.

For JOURNAL dated *15th of month* — 22nd of month preceding date of issue.

Names of classified advertisers using key letters can not be supplied. Address your reply to the key letters, c/o JOURNAL of the AVMA, 600 S. Michigan Ave., Chicago 5, Ill., and it will be transmitted to the advertiser.

Wanted—Veterinarians

Nationally established, ethical, manufacturer distributor of veterinary pharmaceuticals offers extraordinary opportunity for veterinarian or college graduate experienced as pharmaceutical sales representative. Write now. Address "Box N 14," c/o JOURNAL of the AVMA.

(*Continued on p. 52*)

for dermatoses

STERANE®
BRAND OF PREDNISOLONE
Intramuscular-Veterinary
Pfizer

"choice steroid in dermatology..."

immunize against distemper and hepatitis with one single shot...

Sin-jex is the first vaccine to utilize a vacuum-dried modified live virus distemper fraction, with killed virus hepatitis fraction as diluent! This modified live virus distemper fraction elicits a more marked response; hence, Sin-jex assures more positive immunity.

R_L's "reconstitiquick" feature means Sin-jex reconstitutes instantly in a fine, homogenous suspension which passes readily through a 22 gauge needle. Sin-jex requires a simple subcutaneous injection which may be given before or after weaning—simultaneously with or without Anti-Canine Distemper Serum and Anti-Infectious Hepatitis Serum (Bival Sera R_L).

Available from independent ethical distributors.

Sold only to graduate veterinarians

Research Laboratories, Inc.
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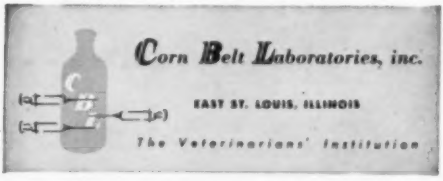
distemper hepatitis
sin-jex
vaccine

Public health veterinarian wanted; some experience in public health or related fields is desirable. Must be 35 years of age or under in order to qualify in the pension plan. Title—Chief, Environmental Health; duties—direct milk, meat, food programs; supervision of 24 persons; assisting Health Commissioner in program of planning, budget making, and public relations; epidemiology of zoonoses; salary—$6,120 per annum to start, plus allowances; liberal pension plan, vacation and sick leave. Civil Service status with city government. Address: Commissioner of Health, Board of Health, 3rd floor City Hall, Fort Wayne, Ind.

Relief veterinarian wanted for small animal hospital; Connecticut license required. Salary and commission arrangement. Write Dr. Harry Gorfien, 959 Campbell Ave., West Haven 16, Conn.

Veterinarian wanted as assistant for small animal hospital in Illinois; partnership arrangement after trial period. Full particulars in first letter including salary expected. Address "Box R 9," c/o JOURNAL of the AVMA.



Immediate opening for veterinarian in Veterinary-Medical Division for clinical research work and related professional services. Practical experience desirable. Some travel involved. Please forward resumés to Personnel Director, Eaton Laboratories Division of The Norwich Pharmacal Company, Norwich, N.Y.

Wanted—Positions

Veterinarian desires employment with state poultry or meat inspection. Experienced. Address "Box K 8," c/o JOURNAL of the AVMA.

Experienced, graduate veterinarian seeks position in small animal or mixed practice leading to partnership or purchase of practice. Licensed in Illinois and Missouri. Address "Box R 1," c/o JOURNAL of the AVMA.

Remittance must accompany advertisement

German veterinarian, 27, graduated Munich, Germany, 1956 (graduates of this year are recommended by AVMA for recognition by State Boards and other agencies) married, wants position as assistant in large or mixed animal practice by beginning of 1957. Address Herbert Schels, Rambergstrasse 4, Munich 13, Germany.

Position wanted leading to lease, partnership, or purchase of large animal practice in Indiana, Iowa, Illinois, or Wisconsin. Finish military service in December, 1956. Address Lt. C. E. Herren, 476 Med. Det. (VFIL), APO 59, San Francisco, Calif. (via air mail).

(*Continued on p. 56*)

A MESSAGE TO VETERINARIANS

BUY ONLY an X-ray outfit designed exclusively for veterinary use. Don't make the mistake of buying an X-ray unit for use on the human body.

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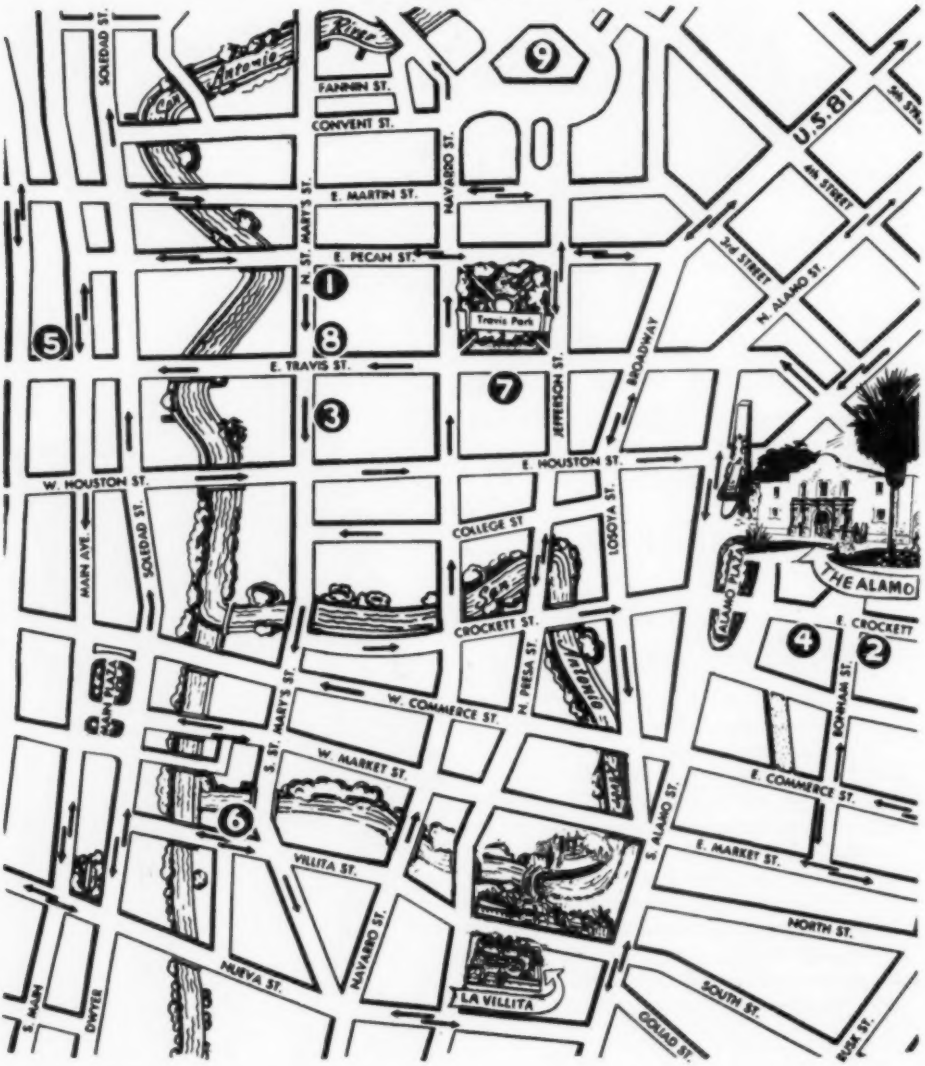
Hotel Map of San Antonio

The general sessions and larger section meetings will be held at the Municipal Auditorium (No. 9). The smaller section meetings will be held at the Gunter Hotel (No. 3).



1. Blue Bonnet Hotel
2. Crockett Hotel
3. Gunter Hotel
4. Menger Hotel
5. Robert E. Lee Hotel
6. Plaza Hotel
7. St. Anthony Hotel
8. White Plaza Hotel
9. Auditorium

Motel Information—Motels listed on the reservation form are located on Austin Highway, U.S. 81, which enters San Antonio via Broadway. Rio Lado Motel is at 1100 N. St. Mary's St., near the business section.

HOTEL RESERVATIONS — SAN ANTONIO CONVENTION

Ninety-Third Annual AVMA Meeting, Oct. 15-18, 1956

All requests for hotel accommodations will be handled by a Housing Bureau in cooperation with the Committee on Local Arrangements. The Bureau will clear all requests and confirm reservations.

Hotels—Motels and Rates (all are air-conditioned)

HOTEL	SINGLE	DOUBLE	TWIN BEDS
1. Blue Bonnet	$3.00-5.00	$5.00-8.00	$.....
2. Crockett	$3.50-4.50	$5.50-6.50	.....
3. Gunter	$5.00 and up	$6.50 and up	.....
4. Menger	$5.00-8.00	$7.00-12.00	.....
5. Robert E. Lee	$3.50-5.00	$5.00-6.00	$6.00-8.00
7. St. Anthony	$5.00 and up	$7.00 and up	.....
8. White Plaza	$3.25 and up	$4.75 and up	.....

MOTEL	RATES
1. Aero	$7.50-9.00
2. Aloha	$6.00 and up
3. Belvedere	$6.00-10.00
4. Casa Linda	$6.00 and up
5. Koronado	$5.00 and up
6. Park	$4.00-15.00
7. Rio Lado	$6.00-10.00
8. The Westerner	$5.00 and up
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To: HOUSING BUREAU, San Antonio Visitors and Information Department, Chamber of Commerce, Insurance Building, San Antonio 5, Texas.

Please make reservations indicated below:

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———Single room(s) at $.....

———Double bed room(s) at $.....

———Twin-bed room(s) at $.....

———Suite (specify type of accommodations wanted)

(Three choices MUST be shown)

First choice hotel _____

Second choice hotel _____

Third choice hotel _____

MOTEL

Indicate type of accommodations

(_____)
Unit, Cabin,

wanted for _____ persons at $_____
No. rate

(Three choices MUST be shown)

First choice motel _____

Second choice motel _____

Third choice motel _____

Arriving on (date) _____ at _____ a.m. _____ p.m.

Leaving on (date) _____ at _____ a.m. _____ p.m.

Will be occupied by (attach list of additional names if necessary).

Your Name (Print or Type) _____

Street Address _____ City and State or Province _____

Position wanted—I am not a veterinarian but have had 20 years of experience in veterinary work. Complete knowledge of care of Thoroughbred race horses including x-raying. Will travel anywhere. Address "Box R 6," c/o JOURNAL of the AVMA.

Position wanted as secretary to veterinarian; 10 years of experience in large animal practice specializing in Thoroughbred horse work. Will travel anywhere. Address "Box R 7," c/o JOURNAL of the AVMA.

Wanted—Practices

Small animal practice wanted in New York State; ample capital. Must be a going, established practice completely equipped. Address "Box E 7," c/o JOURNAL of the AVMA.

Wanted to lease in Maryland, with or without option to buy, active successful small animal hospital. Give full details in first reply. All letters answered. Address "Box R 2," c/o JOURNAL of the AVMA.

For Sale or Lease—Practices

Mixed practice for sale in southern Ontario. Includes 2-story building; main floor, 6-room small animal hospital, 5-room apartment upstairs. Fully equipped. Property, 1½ acres. Address "Box R 3," c/o JOURNAL of the AVMA.

Modern hospital to lease in growing Pennsylvania city; living quarters. Practice is slightly run down due to outside interests of owner. Cheap rent first year. Long lease. Address "Box R 4," c/o JOURNAL of the AVMA.

Excellent large animal practice for sale in northern Missouri; gross, $30,000. Includes 7-room home, downtown office, drugs, chute, and equipment. Sale barn and state testing available. Priced for quick sale at $20,000. Address "Box R 5," c/o JOURNAL of the AVMA.

Long-established pet hospital for lease in Long Beach, Calif.; excellent location, open and doing business. Ideal opportunity for experienced man without money. Buy or supply medicines and take over. Address "Box R 8," c/o JOURNAL of the AVMA.

Miscellaneous

For sale-veterinary equipment, large and small animals; write for list. Address Dr. S. E. Hershey, P.O. Box 283, Charleston, W. Va.

(*Continued on p. 59*)

SELF FILLING SYRINGE

The multi-injector's third hand

Another accurate smooth working ground glass barrel — leak proof metal plunger instrument with many possibilities. Adjustable for any capacity. By attaching one end of a rubber tube to the self-filling syringe and the other to a bottle of serum or vaccine any number of quick 1/4cc to 5cc accurate dose injections can be made. The instrument is operated with one hand. Anyone who injects a large number of animals will find the Self-Filling Syringe will pay for itself both in labor and serum saved after the first day's use.

Sizes 2cc and 5cc

Literature upon request

Inquire at your nearest veterinary dealer or wholesaler about this new improved outstanding product.

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... to fight car sickness. Help him out with

BONAMINE*

BRAND OF MECLIZINE HYDROCHLORIDE

Prevent car sickness effectively with a single daily dose

Bonamine is also indicated:

- to control nausea of worming
- in "nervous" gastritis
- to prevent regurgitation in brachycephalics
- where a mild calming effect is desired
- whenever a reliable anti-nauseant is required

Daily Dosage: ½ tablet for animals 2 to 5 lb. in weight, 1 tablet for 5 to 20 lb., 1 to 2 tablets for 20 to 50 lb., and 2 to 3 tablets for larger animals.

Supplied: Bonamine Tablets, 25 mg., in boxes of 8; bottles of 100 and 500.

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Division, Chas. Pfizer & Co., Inc.

Compare
PRICE
Compare
RESULTS
and you will always
Prescribe
MASTICS®

ACTUAL SIZE
THE ORIGINAL
UDDER BOUGIE

MASTICS P&S

100,000 units penicillin
50,000 mcg. dihydrostreptomycin

MASTICS act fast because medication in high concentration is quickly dispersed throughout the quarter. Improvement often noted in 12 hours.

MASTICS contain no grease, no wax, no insoluble materials to remain in the udder retarding antibiotic action. MASTICS milk out completely—produce no residue on the strainer.

MASTICS are so effective, cows are returned to the herd more promptly with less loss of production.

LOW IN COST...HIGH IN POTENCY
MASTICS SAVE TIME, MONEY, MILK

WRITE FOR SAMPLES AND PRICES

The Martin Laboratories
West Chester, Penna.

Skin Adherent No. 2
Non-irritating liquid adhesive
for strapping and padding
Send for Sample
The MOWBRAY COMPANY,
Waverly, Iowa

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(CLASSIFIED ADS—*continued from p. 56*)

Breedersleve—The disposable obstetrical sleeve. Package of 20 with detachable chest band, $5.00; lower wholesale prices. Free sample upon request. Breeders Eqnuipment Co., Flourtown, Pa.

Medical coach veterinary mobile unit demonstrator on 1955, ¾ ton, deluxe Ford pickup; completely equipped, 15,000 actual miles; looks and operates like new; $2,750. Contact R. C. Sutton, Box 121, Albany, Ga.

Pregnancy diagnosis in mares—45th to 150th day. Request mailing tubes; $7.00, 2 or more, $6.00 each. Pregnancy Diagnostic Laboratories, Dysart, Iowa.

Artificial Udder—Beco Litter Feeder—nurses 8 puppies simultaneously. Stays warm; easily cleaned and sterilized. Complete unit, $15; guaranteed. Breeders Equipment Co., Flourtown, Pa.

To insure prompt delivery replies should be carefully addressed.

Send for FREE 36-page Treatise on

CARROT OIL VITAMINS

Details the advantages of carrot oil vitamins when used in feeds to improve breeding results; to destroy oxidized milk flavors; and to promote general good health and glossy coats. Contains much information. Replete with data and references. Send for it today.

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BRAND OF PREDNISOLONE

Intramuscular-Veterinary

Pfizer

"highest glucocorticoid activity..."

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Please send ☐ Samples ☐ Literature of the NEW PRO Brand Animal Foods.

Dr._____

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Ru-Bac *taboles* or *powder* provide an easy and dependable method of inoculating the rumen of calves, cattle and sheep with viable rumen bacteria obtained from healthy cows and reinforced with cultured bacteria. In mature ruminants, it is recommended for the adjunctive treatment of rumen dysfunction in *ketosis, chronic bloat, toxemias, nutritional diarrhea,* and similar conditions in which *anorexia* is a sympton.

In calves, Ru-Bac stimulates early rumination. Establishment of an optimal rumen flora in animals raised on milk will promote growth and prevent scours. Ru-Bac is also valuable in promoting weight gains and preventing bloat in feed lot animals.

Ru-Bac should be used in conjunction with sulfonamides and antibiotic preparations which are capable of upsetting rumen bacteria balance.

HAVER-GLOVER
Laboratories
INCORPORATED

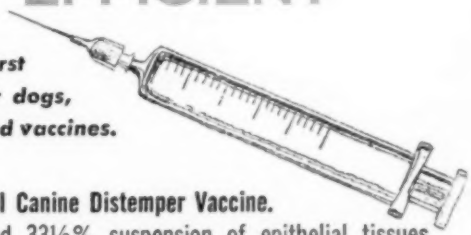
LOCKHART

INTRADERMAL VACCINES

are • SAFE

• ECONOMICAL

• EFFICIENT



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ALODERM — Intradermal Canine Distemper Vaccine.
Formalin–devitalized 33⅓% suspension of epithelial tissues from organs harvested from selected pups affected with canine distemper.

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Formalin-inactivated vaccine prepared from tissues of high virus concentration.

ALODERM-H — Combined Intradermal Canine Distemper Vaccine and Infectious Canine Hepatitis Vaccine.
Truly a combination vaccine, in that a full dose of Infectious Canine Distemper Vaccine and a full dose of Infectious Canine Hepatitis Vaccine are available with no sacrifice of either.

Lockhart Intradermal Vaccines are available only to graduate veterinarians.

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